~~American Radiation Services~~
1903 Central Ave. GEL
Los Alamos NM 87544

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-940

Page 1 of 1

Client Contact:

Lab Agreement # : 126310031

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Rad Screening Info:

Lab Reporting Limit Type:

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAPU-13-34785	Jun 10 2013	13:50	W			1	1		1	1		
CAPU-13-34777	Jun 10 2013	13:50	W					1			1	1
CAPU-13-34779	Jun 10 2013	12:18	W	2	3			1			1	1
CAPU-13-34787	Jun 10 2013	12:18	W			1	1		1	1		
CAPU-13-34769	Jun 10 2013	12:18	W	2	3							
CAPU-13-34772	Jun 10 2013	12:18	W	2								

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Sheri Sherwood	S. Sherwood	6/11/13 3pm			
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4238 **EVENT NAME:** LA/Pueblo (TA-21 and General Surveillance Monitoring Group) Q3 MY2013 Sampling Event_Pueblo

SAMPLE ID: CAPU-13-34769 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		6/10/2013	FIELD MATRIX:	WG	QC
TIME COLLECTED (HH:MM):		1218	MEDIA:	UA	"
PRS ID:		QC	SAMPLE TECH CODE:	UA	PC
LOCATION ID:	R-4	"	FIELD PREP:	UF	QC
LOCATION TYPE:		"	FIELD QC TYPE:	FB	"
PORT:	SINGLE COMPLETION	"	SAMPLE USAGE:	QC	"

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
"	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE 6/13 @1615	"	"

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) A. Vigil, W. Shaw

RELINQUISHED BY (Printed Name) W. Shaw **(Signature)**	**Date/Time** 6/10/13 1330	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood	**Date/Time** 6/10/13 1330
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 05/29/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4238

EVENT NAME: LA/Pueblo (TA-21 and General Surveillance Monitoring Group) Q3 MY2013 Sampling Event_Pueblo

SAMPLE ID: CAPU-13-34772

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		6/10/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1218	MEDIA:	UA	1
PRS ID:		OK	SAMPLE TECH CODE:	UA	NC
LOCATION ID:	R-4		FIELD PREP:	UF	NK
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	QC	

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

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
W. Shaw	6/10/13 1330	S. Sherwood	6/10/13 1330
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 05/29/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4238

EVENT NAME: LA/Pueblo (TA-21 and General Surveillance Monitoring Group) Q3 MY2013 Sampling Event_Pueblo

SAMPLE ID: CAPU-13-34777

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		06/10/2013	**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):		1350	**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-3		**FIELD PREP:**	UF	
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: NA

LOCATION COMMENTS: very windy, diesel generator running 50' away

FIELD PARAMETERS:

Dissolved Oxygen 4.49 mg/L Oxidation-Reduction Potential 82.1 MV pH 8.20 SU

Specific Conductance 187 uS/cm Temperature 25.50 deg C Turbidity 0.1 NTU

COLLECTED BY (PRINT) M. Green

RELINQUISHED BY (Printed Name) Andrew Stacker **(Signature)**	**Date/Time** 6/10/13 1430	**RECEIVED BY (Printed Name)** K. Bruce **(Signature)**	**Date/Time** 6/10/13 2:30
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 05/29/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4238

EVENT NAME: LA/Pueblo (TA-21 and General Surveillance Monitoring Group) Q3 MY2013 Sampling Event_Pueblo

SAMPLE ID: CAPU-13-34779

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		6/10/2013	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1218	**MEDIA:**	UA	"
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-4	"	**FIELD PREP:**	UF	OK
LOCATION TYPE:	MON	"	**FIELD QC TYPE:**	REG	"
PORT:	SINGLE COMPLETION	"	**SAMPLE USAGE:**	INV	"

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

SAMPLE COMMENTS: Windy diesel generator upwind

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 3.95 mg/L | Oxidation-Reduction Potential 97.4 MV | pH 8.20 SU

Specific Conductance 190 uS/cm | Temperature 25.21 deg C | Turbidity 0.1 NTU

COLLECTED BY (PRINT) M. Shands

RELINQUISHED BY (Printed Name) W. Ham Shan **(Signature)**	**Date/Time** 6/10/13 1330	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood	**Date/Time** 6/10/13 1330
RELINQUISHED BY (Printed Name) **(Signature)**	**Date/Time**	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time**

Report Date 05/29/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4238 **EVENT NAME:** LA/Pueblo (TA-21 and General Surveillance Monitoring Group) Q3 MY2013 Sampling Event_Pueblo

SAMPLE ID: CAPU-13-34785 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		06/10/2013	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1350	MEDIA:	UA	"
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSF
LOCATION ID:	R-3		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

NA

LOCATION COMMENTS: Very windy, diesel generator running 50' away

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) M. Green

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stokes	6/10/13 1430	K. Greene	6/10/13 2:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 05/29/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4238

EVENT NAME: LA/Pueblo (TA-21 and General Surveillance Monitoring Group) Q3 MY2013 Sampling Event_Pueblo

SAMPLE ID: CAPU-13-34787

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		6/10/2013	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1218	MEDIA:	UA	"
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-4		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: N/A

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) M Shanks

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shanks	6/10/13 1330	S Sherwood	6/10/13 1330
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 05/29/2013

Data Validation Report

Chain Of Custody No. 2013-940

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
327396	EPA:120.1	2				
327396	EPA:150.1	2				
327396	EPA:160.1	2				
327396	EPA:245.2	2				
327396	EPA:300.0	2				
327396	EPA:310.1	2				
327396	EPA:350.1	2				
327396	EPA:351.2	2				
327396	EPA:353.2	2				
327396	EPA:365.4	2				
327396	EPA:900	2				
327396	EPA:901.1	2				
327396	EPA:905.0	2				
327396	HASL-300:AM-241	2				
327396	HASL-300:ISOPU	2				
327396	HASL-300:ISOU	2				
327396	SM:A2340B	2				
327396	SW-846:6010B	2				
327396	SW-846:6020	2				
327396	SW-846:6850	2				
327396	SW-846:8260B	1		1	1	
327396	SW-846:8270C	1			1	
327396	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
327396	EPA:120.1	1308081	1308081	2							
327396	EPA:150.1	1308135	1308135	2							
327396	EPA:160.1	1307663	1307663	2					1		
327396	EPA:245.2	1307337	1307336	2					1	1	
327396	EPA:300.0	1307985	1307985	2					1		
327396	EPA:310.1	1307658	1307658	1					2	1	
327396	EPA:310.1	1310049	1310049	1					2	1	
327396	EPA:350.1	1307626	1307625	2					1	1	
327396	EPA:351.2	1308288	1308287	2					1	2	
327396	EPA:353.2	1308114	1308114	2					1		
327396	EPA:365.4	1307629	1307628	2					1	1	
327396	EPA:900	1308529	1308529	2					1	1	1
327396	EPA:901.1	1307967	1307967	2					1		
327396	EPA:905.0	1307879	1307879	2					1	1	
327396	HASL-300:AM-241	1307462	1307462	2					1		
327396	HASL-300:ISOPU	1307464	1307464	2					1		
327396	HASL-300:ISOU	1307467	1307467	2					1		
327396	SM:A2340B	1312560	1312560	2							
327396	SW-846:6010B	1307832	1307831	2					1	1	
327396	SW-846:6020	1307830	1307829	2					1	1	
327396	SW-846:6850	1306713	1306712	2					1	1	1

Data Validation Report for:

Chain Of Custody No. 2013-940

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			
		2				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							

327396	SW-846:8260B	1309640	1309640	1		1	1		2		
327396	SW-846:8270C	1308465	1308464	1			1		1	1	1
327396	SW-846:9060	1307044	1307044	2					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	CALA-13-33429	1202892397	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202892399	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAPU-13-34783	1202892561	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202892559	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPU-13-34787	1202891540	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202891344	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202891341	MB	1	0	0	0
EPA:245.2	INORGANIC	CAPU-13-34785	1202890535	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAPU-13-34785	1202890536	MS	0	0	1	0
EPA:245.2	INORGANIC	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:245.2	INORGANIC	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202890534	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202890533	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPU-13-34785	1202892154	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202892156	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202892153	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CALA-13-33429	1202891329	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CALA-13-33429	1202891330	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPU-13-34787	1202897466	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPU-13-34787	1202897467	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202891328	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202892334	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202897463	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202897512	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202891327	MB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202892333	MB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202897462	MB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202897511	MB	2	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPU-13-34785	1202891256	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPU-13-34785	1202891258	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202891259	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202891254	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPU-13-34773	1202892934	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPU-13-34773	1202892936	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAPU-13-34777	327396002	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPU-13-34778	1202892935	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPU-13-34778	1202892937	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAPU-13-34779	327396003	REG	1	0	0	0

Data Validation Report for:

Chain Of Custody No. 2013-940

		4							
		1							
		1				1			

EPA:351.2	GENERAL CHEMISTRY	LCS	1202892938	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202892933	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPU-13-34781	1202892482	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202892487	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202892480	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPU-13-34781	1202891261	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPU-13-34781	1202891263	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAPU-13-34785	327396001	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPU-13-34787	327396004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202891265	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202891260	MB	1	0	0	0
EPA:900	RAD	CAPU-13-34775	1202893585	DUP	2	0	0	0
EPA:900	RAD	CAPU-13-34775	1202893586	MS	0	0	2	0
EPA:900	RAD	CAPU-13-34775	1202893587	MSD	0	0	2	0
EPA:900	RAD	CAPU-13-34777	327396002	REG	2	0	0	0
EPA:900	RAD	CAPU-13-34779	327396003	REG	2	0	0	0
EPA:900	RAD	LCS	1202893588	LCS	0	0	2	0
EPA:900	RAD	MB	1202893584	MB	2	0	0	0
EPA:901.1	RAD	CALA-13-33427	1202892111	DUP	5	0	0	0
EPA:901.1	RAD	CAPU-13-34777	327396002	REG	5	0	0	0
EPA:901.1	RAD	CAPU-13-34779	327396003	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202892112	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202892110	MB	5	0	0	0
EPA:905.0	RAD	CALA-13-33427	1202891917	DUP	1	0	0	0
EPA:905.0	RAD	CALA-13-33427	1202891918	MS	0	0	1	0
EPA:905.0	RAD	CAPU-13-34777	327396002	REG	1	0	0	0
EPA:905.0	RAD	CAPU-13-34779	327396003	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202891919	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202891916	MB	1	0	0	0
HASL-300:AM-241	RAD	CAPU-13-34777	1202890848	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAPU-13-34777	327396002	REG	1	0	0	0
HASL-300:AM-241	RAD	CAPU-13-34779	327396003	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202890849	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202890847	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAPU-13-34777	1202890856	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAPU-13-34777	327396002	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAPU-13-34779	327396003	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202890857	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202890855	MB	2	0	0	0
HASL-300:ISOU	RAD	CAPU-13-34777	1202890864	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAPU-13-34777	327396002	REG	3	0	0	0
HASL-300:ISOU	RAD	CAPU-13-34779	327396003	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202890865	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202890863	MB	3	0	0	0
SM:A2340B	INORGANIC	CAPU-13-34785	327396001	REG	1	0	0	0
SM:A2340B	INORGANIC	CAPU-13-34787	327396004	REG	1	0	0	0
SW-846:6010B	INORGANIC	CALA-13-33435	1202891769	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CALA-13-33435	1202891770	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAPU-13-34785	327396001	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAPU-13-34787	327396004	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202891768	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202891767	MB	17	0	0	0
SW-846:6020	INORGANIC	CALA-13-33435	1202891764	DUP	11	0	0	0
SW-846:6020	INORGANIC	CALA-13-33435	1202891765	MS	0	0	11	0
SW-846:6020	INORGANIC	CAPU-13-34785	327396001	REG	11	0	0	0

Data Validation Report for:

Chain Of Custody No. 2013-940

SW-846:6020	INORGANIC	CAPU-13-34787	327396004	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202891763	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202891762	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CALA-13-33434	1202888869	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CALA-13-33434	1202888870	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPU-13-34785	327396001	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPU-13-34787	327396004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202888868	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202888867	MB	1	0	0	0
SW-846:8260B	VOC	CAPU-13-34769	327396005	FB	80	3	0	0
SW-846:8260B	VOC	CAPU-13-34772	327396006	FTB	80	3	0	0
SW-846:8260B	VOC	CAPU-13-34779	327396003	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202896540	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202896541	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202898196	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202898197	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202896531	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202898195	MB	80	3	0	0
SW-846:8270C	SVOC	CAPU-13-34769	327396005	FB	80	6	0	0
SW-846:8270C	SVOC	CAPU-13-34779	1202893395	MS	0	6	76	0
SW-846:8270C	SVOC	CAPU-13-34779	1202893396	MSD	0	6	76	0
SW-846:8270C	SVOC	CAPU-13-34779	327396003	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202893394	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202893393	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPU-13-34774	1202889801	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPU-13-34777	327396002	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPU-13-34779	327396003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202889805	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202889800	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202891260	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0384	J	mg/L	0.05
MB	1202891767	METHOD BLANK	SW-846:6010B	W	Potassium	63.5	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

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

Data Validation Report for:

Chain Of Custody No. 2013-940

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

CAPU-13-34785	MB	1202891260	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0384	0.0784		0.05	Y
CAPU-13-34787	MB	1202891260	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0384	0.107		0.05	Y

6. Any surrogate recoveries outside the control limits?

No.

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

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAPU-13-34775	1202893586	1202893587	EPA:900	Gross alpha	1308529	6/26/2013	W	94.2	109	125	75
CAPU-13-34779	1202893395	1202893396	SW-846:8270C	Nitroaniline[4-]	1308464	6/18/2013	W	151	158	133	25

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
1202893394		SW-846:8270C	Nitroaniline[4-]	1308464	6/18/2013	W	154		133	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Field Sample ID	Lab SampleID	Lab Duplicate Sample ID	Analytical Method	Parameter Name	Sample Matrix	Sample Result	Dup Sample Result	Units	Detected In Sample	Detected In Dup	RPD
CAPU-13-34787	327396004	1202891540	EPA:160.1	Total Dissolved Solids	W	150	169	mg/L	Y	Y	11.7
CAPU-13-34777	327396002	1202890864	HASL-300:ISOU	Uranium-234	W	0.57	0.56	pCi/L	Y	Y	1.63
CAPU-13-34777	327396002	1202890864	HASL-300:ISOU	Uranium-238	W	0.301	0.36	pCi/L	Y	Y	17.9

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-3	2013-940	CAPU-13-34777	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N

Data Validation Report for:

Chain Of Custody No. 2013-940

5		Y
5		Y

Rejection Limit	RPD		RPD Limit	
10		14.9		2.13
10		5		30

Upper Reject Limit	RPD	RPD Limit

RPD
Limit

10
0.0666
0.0425

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
0.0117	pCi/L	0.0117	pCi/L	0.0443	0.00826	W	6/10/2013		1307462	VAL	Y
1.42	pCi/L	1.42	pCi/L	3.12	0.83	W	6/10/2013		1307967	VAL	Y
-0.406	pCi/L	-0.406	pCi/L	3.88	1.07	W	6/10/2013		1307967	VAL	Y
1.6	pCi/L	1.6	pCi/L	2.99	0.931	W	6/10/2013		1308529	VAL	Y
-2.45	pCi/L	-2.45	pCi/L	6.83	2.4	W	6/10/2013		1307967	VAL	Y
-0.00222	pCi/L	-0.00222	pCi/L	0.0208	0.00384	W	6/10/2013		1307464	VAL	Y
0.00222	pCi/L	0.00222	pCi/L	0.0437	0.00665	W	6/10/2013		1307464	VAL	Y
20.5	pCi/L	20.5	pCi/L	40.7	19.2	W	6/10/2013		1307967	VAL	Y

R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	HASL-300:ISOU	Uranium-234		J	R10	Y
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-3	2013-940	CAPU-13-34777	REG	INIT	RAD	HASL-300:ISOU	Uranium-238		J	R10	Y
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-4	2013-940	CAPU-13-34779	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-3	2013-940	CAPU-13-34785	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus		U	I4	N
R-4	2013-940	CAPU-13-34787	REG	INIT	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids		J	I10a	Y
R-4	2013-940	CAPU-13-34787	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus		U	I4	N

Reason Code	Description
I10a	The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples.
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAPU-13-34769	R-4	FB	SW-846:8260B	0	80
CAPU-13-34769	R-4	FB	SW-846:8270C	0	80
CAPU-13-34772	R-4	FTB	SW-846:8260B	0	80
CAPU-13-34777	R-3	REG	EPA:351.2	0	1
CAPU-13-34777	R-3	REG	EPA:900	0	2
CAPU-13-34777	R-3	REG	EPA:901.1	0	5
CAPU-13-34777	R-3	REG	EPA:905.0	0	1
CAPU-13-34777	R-3	REG	HASL-300:AM-241	0	1
CAPU-13-34777	R-3	REG	HASL-300:ISOPU	0	2
CAPU-13-34777	R-3	REG	HASL-300:ISOU	0	3
CAPU-13-34777	R-3	REG	SW-846:9060	0	1
CAPU-13-34779	R-4	REG	EPA:351.2	0	1
CAPU-13-34779	R-4	REG	EPA:900	0	2
CAPU-13-34779	R-4	REG	EPA:901.1	0	5
CAPU-13-34779	R-4	REG	EPA:905.0	0	1
CAPU-13-34779	R-4	REG	HASL-300:AM-241	0	1
CAPU-13-34779	R-4	REG	HASL-300:ISOPU	0	2

0.0334	pCi/L	0.0334	pCi/L	3.93	1.07	W	6/10/2013		1307967	VAL	Y
0.406	pCi/L	0.406	pCi/L	0.459	0.142	W	6/10/2013		1307879	VAL	Y
0.57	pCi/L	0.57	pCi/L	0.0655	0.0419	W	6/10/2013		1307467	VAL	Y
0.0221	pCi/L	0.0221	pCi/L	0.051	0.0104	W	6/10/2013		1307467	VAL	Y
0.301	pCi/L	0.301	pCi/L	0.0418	0.0303	W	6/10/2013		1307467	VAL	Y
0.00629	pCi/L	0.00629	pCi/L	0.0478	0.00629	W	6/10/2013		1307462	VAL	Y
-0.225	pCi/L	-0.225	pCi/L	4.78	1.28	W	6/10/2013		1307967	VAL	Y
-0.601	pCi/L	-0.601	pCi/L	4.74	1.3	W	6/10/2013		1307967	VAL	Y
1.56	pCi/L	1.56	pCi/L	2.82	0.903	W	6/10/2013		1308529	VAL	Y
3.54	pCi/L	3.54	pCi/L	10.5	2.79	W	6/10/2013		1307967	VAL	Y
0	pCi/L	0	pCi/L	0.0253	0.00383	W	6/10/2013		1307464	VAL	Y
0.00811	pCi/L	0.00811	pCi/L	0.0533	0.00605	W	6/10/2013		1307464	VAL	Y
8.62	pCi/L	8.62	pCi/L	68.3	16.1	W	6/10/2013		1307967	VAL	Y
-0.438	pCi/L	-0.438	pCi/L	4.93	1.34	W	6/10/2013		1307967	VAL	Y
0.276	pCi/L	0.276	pCi/L	0.478	0.146	W	6/10/2013		1307879	VAL	Y
0.0139	pCi/L	0.0139	pCi/L	0.048	0.0085	W	6/10/2013		1307467	VAL	Y
0.0784	mg/L	0.0784	mg/L			W	6/10/2013		1307629	VAL	Y
150	mg/L	150	mg/L			W	6/10/2013		1307663	VAL	Y
0.107	mg/L	0.107	mg/L			W	6/10/2013		1307629	VAL	Y

CAPU-13-34779	R-4	REG	HASL-300:ISOU	0	3
CAPU-13-34779	R-4	REG	SW-846:8260B	0	80
CAPU-13-34779	R-4	REG	SW-846:8270C	0	80
CAPU-13-34779	R-4	REG	SW-846:9060	0	1
CAPU-13-34785	R-3	REG	EPA:120.1	0	1
CAPU-13-34785	R-3	REG	EPA:150.1	0	1
CAPU-13-34785	R-3	REG	EPA:160.1	0	1
CAPU-13-34785	R-3	REG	EPA:245.2	0	1
CAPU-13-34785	R-3	REG	EPA:300.0	0	4
CAPU-13-34785	R-3	REG	EPA:310.1	0	2
CAPU-13-34785	R-3	REG	EPA:350.1	0	1
CAPU-13-34785	R-3	REG	EPA:353.2	0	1
CAPU-13-34785	R-3	REG	EPA:365.4	0	1
CAPU-13-34785	R-3	REG	SM:A2340B	0	1
CAPU-13-34785	R-3	REG	SW-846:6010B	0	17
CAPU-13-34785	R-3	REG	SW-846:6020	0	11
CAPU-13-34785	R-3	REG	SW-846:6850	0	1
CAPU-13-34787	R-4	REG	EPA:120.1	0	1
CAPU-13-34787	R-4	REG	EPA:150.1	0	1
CAPU-13-34787	R-4	REG	EPA:160.1	0	1
CAPU-13-34787	R-4	REG	EPA:245.2	0	1
CAPU-13-34787	R-4	REG	EPA:300.0	0	4
CAPU-13-34787	R-4	REG	EPA:310.1	0	2
CAPU-13-34787	R-4	REG	EPA:350.1	0	1
CAPU-13-34787	R-4	REG	EPA:353.2	0	1
CAPU-13-34787	R-4	REG	EPA:365.4	0	1
CAPU-13-34787	R-4	REG	SM:A2340B	0	1
CAPU-13-34787	R-4	REG	SW-846:6010B	0	17
CAPU-13-34787	R-4	REG	SW-846:6020	0	11
CAPU-13-34787	R-4	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

July 09, 2013

Mr. 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: 327396
SDG: 2013-940

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 12, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-940
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 327396
SDG: 2013-940

Table of Contents

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 327396
SDG # : 2013-940

July 09, 2013

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 June 12, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
327396001	CAPU-13-34785
327396002	CAPU-13-34777
327396003	CAPU-13-34779
327396004	CAPU-13-34787
327396005	CAPU-13-34769
327396006	CAPU-13-34772

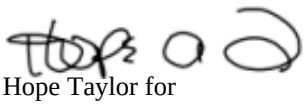
Case Narrative

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, Perchlorates by LCMSMS and Radiochemistry.

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



Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 09 July 2013

State	Certification
Alaska	UST−110
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	LA130005
Maryland	270
Massachusetts	M−SC012
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	T104704235−13−8
Utah NELAP	SC000122013−8
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

~~American Radiation Services~~ GEL
1903 Central Ave.
Los Alamos NM 87544

Chain of Custody/Analysis Request 327396

COC/Lab Request #: 2013-940
Page 1 of 1

Client Contact:

Lab Agreement # : 126310031
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:

Lab Reporting Limit Type:

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAPU-13-34785	Jun 10 2013	13:50	W			1	1		1	1		
CAPU-13-34777	Jun 10 2013	13:50	W					1			1	1
CAPU-13-34779	Jun 10 2013	12:18	W	2	3			1			1	1
CAPU-13-34787	Jun 10 2013	12:18	W			1	1		1	1		
CAPU-13-34769	Jun 10 2013	12:18	W	2	3							
CAPU-13-34772	Jun 10 2013	12:18	W	2								

Special Instructions:

Relinquished by: S. Sherwood	Print Name: S. Sherwood	Date/Time: 6/11/13 3pm	Received by: P. Hunt	Print Name: Patricia Dent	Date/Time: 6.12.13 0850
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL			SDG/AR/COC/Work Order: 2013-940
Received By: Patricia Dent			**Date Received:JUN 12, 2013**
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 **3,4C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): **61524649**
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: **CAPU-13-34777, 34779 for Gross A/B** If Preservation added, Lot#: **NX 009-75**
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: **CAPU-13-34769 for SVOA the lab rec'd 1 container chain indicates 3. CAPU-13-34772 for 8260b the lab rec'd 1 container chain indicates 2.**
12	Are sample containers identifiable as GEL provided?			X	**Clients**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0869 3C 5462 9833 0870 4C**

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HF Date 06/13/13 Page 1 of 1

Subject: Sample Receipt for 061213
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 6/12/2013 11:45 AM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: LANL@amrad.com, "team.davis" <team.davis@gel.com>

The containers for Gross A/B were preserved prior to analysis.

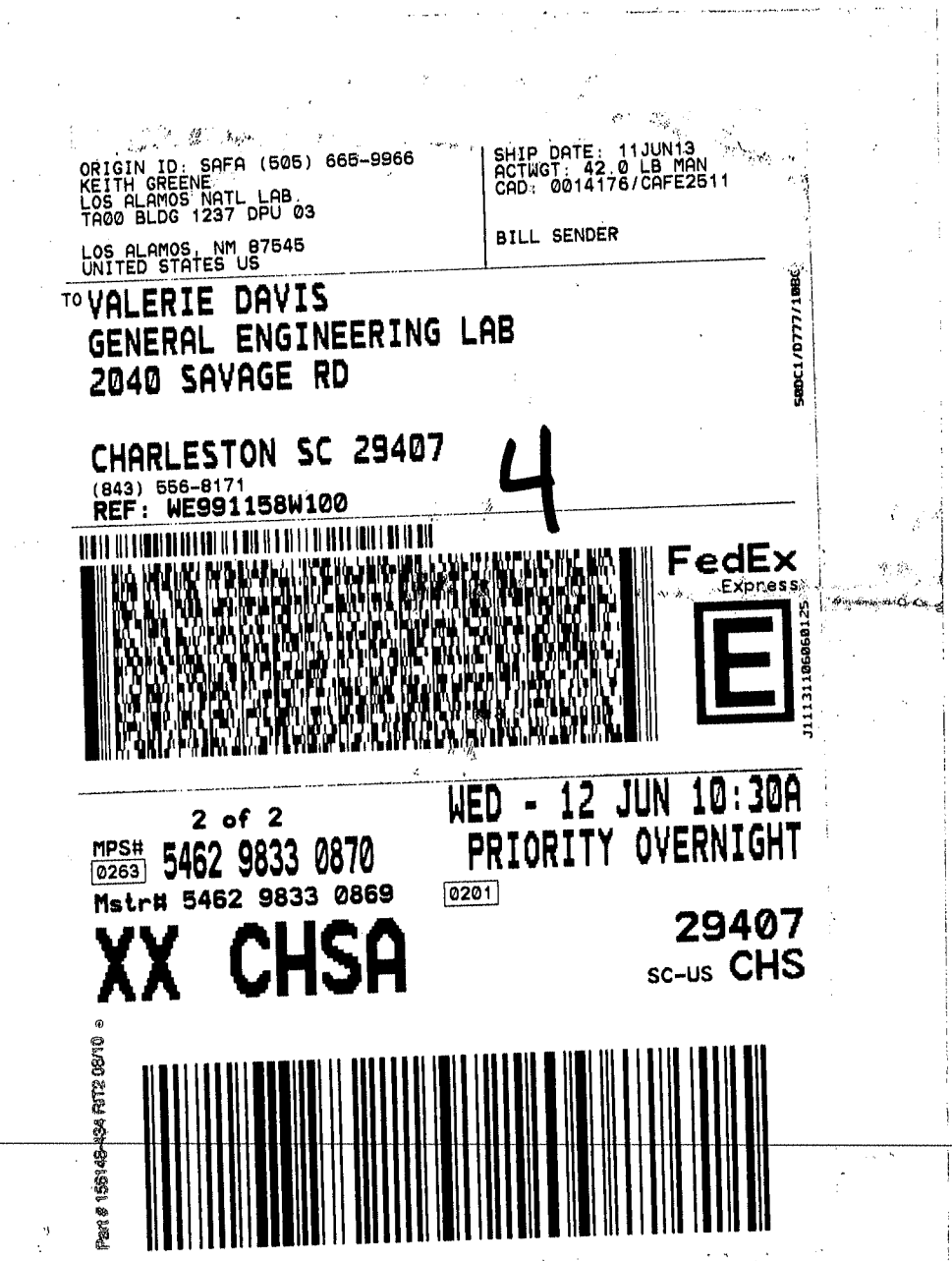
RN 2013-940
lab received 1 container for SVOA for ID CAPU-13-34769, chain indicates 3
lab received (1) 40 ml vial for CAPU-13-34772, chain indicates 2

RN 2013-945
We did not receive a container for ID NP048-13-36080. Please advise.

We received a container for ID NP048-13-32452 for metals not listed on any chains. Please advise.

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com


ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1287-DPU-03
LOS ALAMOS, NM 87545
UNITED STATES US
SHIP DATE: 11JUN13
ACTWGT: 57.0 LB MAN
CAD: 0014176/CAFE2511
BILL SENDER
TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD
CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100
3
FedEx
Express
1 of 2
TRK# 0201 5462 9833 0869
WED - 12 JUN 10:30A
PRIORITY OVERNIGHT
MASTER
XX CHSA
29407
SC-US CHS



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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 11JUN13
ACTWGT: 42.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: WE991158W100

4

FedEx Express

2 of 2
MPS# 0263 5462 9833 0870
Mstr# 5462 9833 0869

WED - 12 JUN 10:30A
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

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

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

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

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-940

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1309640

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
327396003	CAPU-13-34779
327396005	CAPU-13-34769
327396006	CAPU-13-34772
1202896531	Method Blank (MB)
1202896534	327527001(CALA-13-33427) Post Spike (PS)
1202896535	327527001(CALA-13-33427) Post Spike (PS)
1202896538	327527001(CALA-13-33427) Post Spike Duplicate (PSD)
1202896539	327527001(CALA-13-33427) Post Spike Duplicate (PSD)
1202896540	Laboratory Control Sample (LCS)
1202896541	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# 19.

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 blank analyzed with this SDG met the acceptance criteria.

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

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

QC Sample Designation
Sample 327527001 (CALA-13-33427) was designated for spike analysis.

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

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

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

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

Technical Information

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

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

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

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

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

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

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

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

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

Additional Comments
Additional comments were not required for this SDG.

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
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: 2013−940 GEL Work Order: 327396

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

E Concentration of the target analyte exceeds the instrument calibration range

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: 09 JUL 2013 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396003**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 10:42**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 10:42**				
Data File:	**062113V9\9R509.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396003**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 10:42**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 10:42**				
Data File:	**062113V9\9R509.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396003**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 10:42**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 10:42**				
Data File:	**062113V9\9R509.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(78%-124%)
Bromofluorobenzene	52.1	50.0	ug/L	104	(80%-120%)
Toluene-d8	50.5	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	21.7	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396005**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34769**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 11:09**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 11:09**				
Data File:	**062113V9\9R510.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396005**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34769**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 11:09**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 11:09**				
Data File:	**062113V9\9R510.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396005**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34769**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 11:09**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 11:09**				
Data File:	**062113V9\9R510.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.3	50.0	ug/L	105	(78%-124%)
Bromofluorobenzene	52.2	50.0	ug/L	104	(80%-120%)
Toluene-d8	51.7	50.0	ug/L	103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.197	9.93	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396006**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34772**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 09:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 09:48**				
Data File:	**062113V9\9R507.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396006**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34772**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 09:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 09:48**				
Data File:	**062113V9\9R507.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396006**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34772**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 09:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 09:48**				
Data File:	**062113V9\9R507.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.2	50.0	ug/L	100	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	98.9	(80%-120%)
Toluene-d8	48.8	50.0	ug/L	97.7	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	12.1	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-940

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202896540	LCS for batch 1309640	100	98	98
1202896541	LCS for batch 1309640	104	100	107
1202896531	MB for batch 1309640	104	97	101
327396006	CAPU-13-34772	100	98	99
327396003	CAPU-13-34779	103	101	104
327396005	CAPU-13-34769	105	103	104
1202896534	CALA-13-33427PS	94	97	94
1202896538	CALA-13-33427PSD	95	100	97
1202896535	CALA-13-33427PS	99	100	100
1202896539	CALA-13-33427PSD	96	96	103

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: 2013-940 **Sample Type:** Post Spike
Client ID: CALA-13-33427PS **Matrix:** W
Lab Sample ID: 1202896534
Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:14 **Dilution:** 1
Analyst: RXY1
Purge Vol: 5 mL **Batch ID:** 1309640

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	95.5	95	56-134
75-05-8	PS	Acetonitrile	1250	0.00	U	1060	84	60-133
67-64-1	PS	Acetone	250	0.00	U	178	71	30-143
74-88-4	PS	Iodomethane	250	0.00	U	244	98	69-147
75-15-0	PS	Carbon disulfide	250	0.00	U	258	103	65-153
108-05-4	PS	Vinyl acetate	250	0.00	U	253	101	50-143
78-93-3	PS	2-Butanone	250	0.00	U	203	81	30-140
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	221	88	68-136
591-78-6	PS	2-Hexanone	250	0.00	U	209	84	31-132
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	39.7	79	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	41.2	82	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	42.0	84	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	40.1	80	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	42.0	84	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	44.9	90	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	46.6	93	69-121
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	45.7	91	67-132
75-09-2	PS	Methylene chloride	50.0	0.00	U	42.5	85	56-135
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	43.8	88	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	45.7	91	69-128
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	45.2	90	75-124
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	46.3	93	52-147

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike
Client ID: CALA-13-33427PS **Matrix:** W
Lab Sample ID: 1202896534
Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:14 **Dilution:** 1
Analyst: RXY1
Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	48.8	98	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	45.9	92	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	47.2	94	80-120
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	48.3	97	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	47.1	94	71-130
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	50.6	101	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	44.7	89	72-126
71-43-2	PS	Benzene	50.0	0.00	U	45.0	90	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	47.1	94	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	45.8	92	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	48.9	98	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	46.4	93	79-120
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	48.0	96	72-134
108-88-3	PS	Toluene	50.0	0.00	U	45.6	91	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	47.7	95	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	45.5	91	74-120
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	43.7	87	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	47.8	96	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	51.1	102	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	46.3	93	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	45.2	90	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	46.6	93	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike
Client ID: CALA-13-33427PS **Matrix:** W
Lab Sample ID: 1202896534
Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:14 **Dilution:** 1
Analyst: RXY1
Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	PS	o-Xylene	50.0	0.00	U	47.2	94	68-126
100-42-5	PS	Styrene	50.0	0.00	U	48.0	96	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	52.1	104	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	46.0	92	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	44.7	89	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	44.8	90	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	47.1	94	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	45.7	91	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	47.6	95	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	47.8	96	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	45.2	90	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	49.1	98	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	47.6	95	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	48.8	98	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	49.7	99	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	45.9	92	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	46.1	92	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	48.6	97	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	54.9	110	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	48.6	97	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	47.6	95	46-145
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	47.4	95	54-134

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-940** **Sample Type:** **Post Spike**

Client ID: **CALA-13-33427PS** **Matrix:** **W**

Lab Sample ID: **1202896534**

Instrument: **VOA9.I** **Analysis Date:** **06/21/2013 15:14** **Dilution:** **1**

Analyst: **RXY1**

Purge Vol: **5 mL** **Batch ID:** **1309640**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	48.1	96	55-128
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	50.5	101	79-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	46.0	92	68-121
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	4430	89	53-150

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike Duplicate
Client ID: CALA-13-33427PSD **Matrix:** W
Lab Sample ID: 1202896538
Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:40 **Dilution:** 1
Analyst: RXY1
Purge Vol: 5 mL **Batch ID:** 1309640

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	94.3	94	56-134	1	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1070	86	60-133	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	185	74	30-143	4	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	243	97	69-147	0	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	254	102	65-153	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	257	103	50-143	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	209	84	30-140	3	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	230	92	68-136	4	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	221	88	31-132	5	0-20
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	39.7	79	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	41.4	83	47-134	0	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	41.2	82	49-129	2	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	38.9	78	56-127	3	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	41.1	82	67-122	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	45.1	90	60-123	1	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	47.3	95	69-121	2	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	46.5	93	67-132	2	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	42.3	85	56-135	0	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	44.9	90	73-126	2	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	45.7	91	69-128	0	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	45.5	91	75-124	1	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	46.3	93	52-147	0	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike Duplicate

Client ID: CALA-13-33427PSD **Matrix:** W

Lab Sample ID: 1202896538

Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:40 **Dilution:** 1

Analyst: RXY1

Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	48.3	97	67-143	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	45.9	92	75-125	0	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	46.1	92	80-120	2	0-20
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	48.0	96	69-140	1	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	46.5	93	71-130	1	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	49.3	99	69-142	3	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	45.3	91	72-126	1	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	44.6	89	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	47.9	96	54-147	2	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	45.9	92	78-123	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	49.9	100	76-131	2	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	46.8	94	79-120	1	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	48.7	97	72-134	1	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	45.6	91	62-126	0	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	48.4	97	72-133	2	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	45.5	91	74-120	0	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	44.6	89	73-121	2	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	46.7	93	54-139	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	52.2	104	74-128	2	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	46.9	94	80-120	1	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	44.6	89	73-119	2	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	46.3	93	66-125	1	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike Duplicate
Client ID: CALA-13-33427PSD **Matrix:** W
Lab Sample ID: 1202896538
Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:40 **Dilution:** 1
Analyst: RXY1
Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
95-47-6	PSD	o-Xylene	50.0	0.00	U	46.5	93	68-126	1	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	48.0	96	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	52.5	105	66-129	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	45.4	91	44-146	1	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	45.4	91	68-129	2	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	44.5	89	70-122	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	46.0	92	61-131	2	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	45.1	90	66-126	1	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	46.3	93	65-130	3	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.9	92	58-134	4	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	44.9	90	63-125	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	47.8	96	66-129	3	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	46.3	93	60-131	3	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	46.9	94	62-130	4	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	48.1	96	62-132	3	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	45.4	91	66-121	1	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	45.0	90	65-119	3	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	47.0	94	55-134	3	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	56.9	114	58-137	4	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	46.4	93	49-139	5	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	48.5	97	46-145	2	0-20
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	47.3	95	54-134	0	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike Duplicate

Client ID: CALA-13-33427PSD **Matrix:** W

Lab Sample ID: 1202896538

Instrument: VOA9.I **Analysis Date:** 06/21/2013 15:40 **Dilution:** 1

Analyst: RXY1

Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	46.4	93	55-128	3	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	50.4	101	79-128	0	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	44.5	89	68-121	3	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	4700	94	53-150	6	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike

Client ID: CALA-13-33427PS **Matrix:** W

Lab Sample ID: 1202896535

Instrument: VOA9.I **Analysis Date:** 06/21/2013 17:01 **Dilution:** 1

Analyst: RXY1

Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	PS	Acrolein	250	0.00	U	231	92	30-167
76-13-1	PS	Trichlorotrifluoroethane	250	0.00	U	275	110	58-169
107-05-1	PS	Allyl chloride	250	0.00	U	251	100	61-136
107-13-1	PS	Acrylonitrile	250	0.00	U	247	99	65-135
107-12-0	PS	Propionitrile	250	0.00	U	249	100	66-141
126-98-7	PS	Methacrylonitrile	250	0.00	U	245	98	63-141
80-62-6	PS	Methyl methacrylate	250	0.00	U	250	100	70-130
97-63-2	PS	Ethyl methacrylate	250	0.00	U	276	110	73-132
78-83-1	PS	Isobutyl alcohol	2500	0.00	U	2370	95	59-146
126-99-8	PS	2-Chloro-1,3-butadiene	50.0	0.00	U	45.5	91	39-130

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Post Spike Duplicate
Client ID: CALA-13-33427PSD **Matrix:** W
Lab Sample ID: 1202896539
Instrument: VOA9.I **Analysis Date:** 06/21/2013 17:29 **Dilution:** 1
Analyst: RXY1
Purge Vol: 5 mL **Batch ID:** 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
107-02-8	PSD	Acrolein	250	0.00	U	194	78	30-167	18	0-20
76-13-1	PSD	Trichlorotrifluoroethane	250	0.00	U	256	102	58-169	7	0-20
107-05-1	PSD	Allyl chloride	250	0.00	U	227	91	61-136	10	0-20
107-13-1	PSD	Acrylonitrile	250	0.00	U	207	83	65-135	17	0-20
107-12-0	PSD	Propionitrile	250	0.00	U	204	82	66-141	20	0-20
126-98-7	PSD	Methacrylonitrile	250	0.00	U	205	82	63-141	18	0-20
80-62-6	PSD	Methyl methacrylate	250	0.00	U	218	87	70-130	14	0-20
97-63-2	PSD	Ethyl methacrylate	250	0.00	U	229	92	73-132	18	0-20
78-83-1	PSD	Isobutyl alcohol	2500	0.00	U	2030	81	59-146	16	0-20
126-99-8	PSD	2-Chloro-1,3-butadiene	50.0	0.00	U	42.0	84	39-130	8	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1309640
Matrix: GROUND WATER
Lab Sample ID: 1202896540
Instrument: VOA9.I
Analysis Date: 06/21/2013 08:00
Dilution: 1
Analyst: RXY1
Purge Vol: 5 mL
Batch ID: 1309640

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	102	102	79-120
75-05-8	LCS	Acetonitrile	1250	0.0	1110	89	64-127
67-64-1	LCS	Acetone	250	0.0	272	109	36-163
74-88-4	LCS	Iodomethane	250	0.0	264	106	80-134
75-15-0	LCS	Carbon disulfide	250	0.0	273	109	80-143
108-05-4	LCS	Vinyl acetate	250	0.0	288	115	75-144
78-93-3	LCS	2-Butanone	250	0.0	265	106	46-158
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	236	95	76-131
591-78-6	LCS	2-Hexanone	250	0.0	250	100	53-158
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	42.3	85	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	45.5	91	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	43.5	87	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	44.1	88	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	51.4	103	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	49.6	99	74-120
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	51.5	103	76-127
75-09-2	LCS	Methylene chloride	50.0	0.0	44.7	89	72-121
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	50.1	100	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.6	101	77-123
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	50.4	101	79-120
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	51.3	103	80-122

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1309640
Matrix: GROUND WATER
Lab Sample ID: 1202896540
Instrument: VOA9.I
Analysis Date: 06/21/2013 08:00
Dilution: 1
Analyst: RXY1
Purge Vol: 5 mL
Batch ID: 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	57.0	114	76-145
67-66-3	LCS	Chloroform	50.0	0.0	50.6	101	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	50.1	100	83-120
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	55.4	111	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	51.8	104	80-127
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	57.4	115	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	50.3	101	75-121
71-43-2	LCS	Benzene	50.0	0.0	47.5	95	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.2	102	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.6	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	54.2	108	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	50.3	101	80-120
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	54.0	108	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.8	98	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	53.2	106	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	47.6	95	79-120
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	46.7	93	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	51.1	102	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	56.1	112	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.0	100	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.7	97	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	50.2	100	78-120

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1309640
Matrix: GROUND WATER
Lab Sample ID: 1202896540
Instrument: VOA9.I
Analysis Date: 06/21/2013 08:00
Dilution: 1
Analyst: RXY1
Purge Vol: 5 mL
Batch ID: 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
95-47-6	LCS	o-Xylene	50.0	0.0	49.8	100	80-120
100-42-5	LCS	Styrene	50.0	0.0	52.0	104	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	47.0	94	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	48.8	98	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	48.0	96	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	49.6	99	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.9	98	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	50.5	101	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.9	102	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.7	97	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	51.8	104	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	51.0	102	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.8	102	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	52.6	105	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	49.5	99	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	49.7	99	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	52.0	104	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	59.3	119	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	51.1	102	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	49.4	99	71-125
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	50.2	100	73-125

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1309640
Matrix: GROUND WATER
Lab Sample ID: 1202896540
Instrument: VOA9.I
Analysis Date: 06/21/2013 08:00
Dilution: 1
Analyst: RXY1
Purge Vol: 5 mL
Batch ID: 1309640

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	51.1	102	75-123
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	55.1	110	80-124
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	48.4	97	79-120
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4990	100	66-138

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1309640
Matrix: GROUND WATER
Lab Sample ID: 1202896541
Instrument: VOA9.I
Analysis Date: 06/21/2013 08:54
Dilution: 1
Analyst: RXY1
Purge Vol: 5 mL
Batch ID: 1309640

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	236	95	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	270	108	65-157
107-05-1	LCS	Allyl chloride	250	0.0	237	95	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	231	93	64-131
107-12-0	LCS	Propionitrile	250	0.0	237	95	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	229	91	64-132
80-62-6	LCS	Methyl methacrylate	250	0.0	249	100	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	262	105	66-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2370	95	60-136
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	46.3	93	45-159

Method Blank Summary

SDG Number:	**2013-940**	**Client:**	**ARSL001**	**Matrix:**	**GROUND WATER**
Client ID:	**MB for batch 1309640**	**Instrument ID:**	**VOA9.I**	**Data File:**	**062113V9\9R506B1.D**
Lab Sample ID:	**1202896531**	**Prep Date:**	**06/21/2013 09:21**	**Analyzed:**	**06/21/13 09:21**
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
01	LCS for batch 1309640	1202896540	062113V9\9R503L1.D	06/21/13	0800
02	LCS for batch 1309640	1202896541	062113V9\9R505L1.D	06/21/13	0854
03	CAPU-13-34772	327396006	062113V9\9R507.D	06/21/13	0948
04	CAPU-13-34779	327396003	062113V9\9R509.D	06/21/13	1042
05	CAPU-13-34769	327396005	062113V9\9R510.D	06/21/13	1109
06	CALA-13-33427PS	1202896534	062113V9\9R519.D	06/21/13	1514
07	CALA-13-33427PSD	1202896538	062113V9\9R520.D	06/21/13	1540
08	CALA-13-33427PS	1202896535	062113V9\9R523.D	06/21/13	1701
09	CALA-13-33427PSD	1202896539	062113V9\9R524.D	06/21/13	1729

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896531**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 09:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 09:21**				
Data File:	**062113V9\9R506B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896531**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 09:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 09:21**				
Data File:	**062113V9\9R506B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896531**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 09:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 09:21**				
Data File:	**062113V9\9R506B1.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.2	50.0	ug/L	104	(78%-124%)
Bromofluorobenzene	50.5	50.0	ug/L	101	(80%-120%)
Toluene-d8	48.7	50.0	ug/L	97.3	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.197	8.66	ug/L	0	J
	unknown	5.236	5.98	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896534**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 15:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 15:14**				
Data File:	**062113V9\9R519.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		50.5	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.0	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		45.5	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.2	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		45.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.1	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		47.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		44.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		48.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		47.6	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		54.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		46.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		44.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		47.8	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		45.9	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		43.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		48.8	ug/L	0.300	1.00
78-93-3	2-Butanone		203	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		45.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		209	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene		45.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		49.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		221	ug/L	1.50	5.00
67-64-1	Acetone		178	ug/L	3.00	10.0
75-05-8	Acetonitrile		1060	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		45.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		44.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.9	ug/L	0.300	1.00
75-25-2	Bromoform		52.1	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896534**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 15:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 15:14**				
Data File:	**062113V9\9R519.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		40.1	ug/L	0.300	1.00
75-15-0	Carbon disulfide		258	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		50.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		45.2	ug/L	0.300	1.00
75-00-3	Chloroethane		42.0	ug/L	0.300	1.00
67-66-3	Chloroform		45.9	ug/L	0.300	1.00
74-87-3	Chloromethane		41.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		46.4	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		39.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		46.6	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		46.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.6	ug/L	0.300	1.00
74-88-4	Iodomethane		244	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		47.6	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		42.5	ug/L	3.00	10.0
91-20-3	Naphthalene		47.6	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		48.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.8	ug/L	0.300	1.00
108-88-3	Toluene		45.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.9	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate		253	ug/L	1.50	5.00
75-01-4	Vinyl chloride		42.0	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		46.3	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		48.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		95.5	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4430	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		48.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		47.1	ug/L	0.300	1.00
95-47-6	o-Xylene		47.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.8	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896534**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 15:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 15:14**				
Data File:	**062113V9\9R519.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		43.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.0	50.0	ug/L	94.1	(78%-124%)
Bromofluorobenzene	46.8	50.0	ug/L	93.6	(80%-120%)
Toluene-d8	48.4	50.0	ug/L	96.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896535**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 17:01**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 17:01**				
Data File:	**062113V9\9R523.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene		45.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		231	ug/L	1.50	5.00
107-13-1	Acrylonitrile		247	ug/L	1.50	5.00
107-05-1	Allyl chloride		251	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896535**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 17:01**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 17:01**				
Data File:	**062113V9\9R523.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		276	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2370	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		245	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		250	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile		249	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		275	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896535**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 17:01**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 17:01**				
Data File:	**062113V9\9R523.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.4	50.0	ug/L	98.9	(78%-124%)
Bromofluorobenzene	50.1	50.0	ug/L	100	(80%-120%)
Toluene-d8	49.9	50.0	ug/L	99.9	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896538**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 15:40**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 15:40**				
Data File:	**062113V9\9R520.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		50.4	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		45.5	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.5	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		46.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.5	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		47.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		45.4	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		46.3	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		56.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		46.9	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		45.4	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		44.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		48.3	ug/L	0.300	1.00
78-93-3	2-Butanone		209	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		45.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		221	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene		44.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		48.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		230	ug/L	1.50	5.00
67-64-1	Acetone		185	ug/L	3.00	10.0
75-05-8	Acetonitrile		1070	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		44.6	ug/L	0.300	1.00
108-86-1	Bromobenzene		44.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		46.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.9	ug/L	0.300	1.00
75-25-2	Bromoform		52.5	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896538**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 15:40**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 15:40**				
Data File:	**062113V9\9R520.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		38.9	ug/L	0.300	1.00
75-15-0	Carbon disulfide		254	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		49.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.6	ug/L	0.300	1.00
75-00-3	Chloroethane		41.1	ug/L	0.300	1.00
67-66-3	Chloroform		45.9	ug/L	0.300	1.00
74-87-3	Chloromethane		41.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.2	ug/L	0.300	1.00
74-95-3	Dibromomethane		46.8	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		39.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.3	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		46.3	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		46.4	ug/L	0.300	1.00
74-88-4	Iodomethane		243	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		46.3	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		42.3	ug/L	3.00	10.0
91-20-3	Naphthalene		48.5	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		48.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.7	ug/L	0.300	1.00
108-88-3	Toluene		45.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.1	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate		257	ug/L	1.50	5.00
75-01-4	Vinyl chloride		41.2	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		46.3	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		48.7	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.3	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4700	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		47.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.0	ug/L	0.300	1.00
95-47-6	o-Xylene		46.5	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.9	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896538**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 15:40**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 15:40**				
Data File:	**062113V9\9R520.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		44.9	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		47.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		48.4	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.7	50.0	ug/L	95.3	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L	97.5	(80%-120%)
Toluene-d8	49.9	50.0	ug/L	99.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896539**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 17:29**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 17:29**				
Data File:	**062113V9\9R524.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene		42.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		194	ug/L	1.50	5.00
107-13-1	Acrylonitrile		207	ug/L	1.50	5.00
107-05-1	Allyl chloride		227	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896539**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 17:29**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 17:29**				
Data File:	**062113V9\9R524.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		229	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2030	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		205	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		218	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile		204	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		256	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/11/2013 09:47**	**Matrix:**	**W**
Lab Sample ID:	**1202896539**	**Date Received:**	**06/13/2013 08:45**		
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CALA-13-33427PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 17:29**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 17:29**				
Data File:	**062113V9\9R524.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.8	50.0	ug/L	95.6	(78%-124%)
Bromofluorobenzene	51.7	50.0	ug/L	103	(80%-120%)
Toluene-d8	47.8	50.0	ug/L	95.6	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896540**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 08:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 08:00**				
Data File:	**062113V9\9R503L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane		55.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.4	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.0	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.6	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		50.4	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		51.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		51.8	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene		50.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		59.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		50.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.5	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane		46.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.0	ug/L	0.300	1.00
78-93-3	2-Butanone		265	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.9	ug/L	0.300	1.00
591-78-6	2-Hexanone		250	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene		48.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		52.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		236	ug/L	1.50	5.00
67-64-1	Acetone		272	ug/L	3.00	10.0
75-05-8	Acetonitrile		1110	ug/L	8.00	25.0
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
71-43-2	Benzene		47.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		50.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.2	ug/L	0.300	1.00
75-25-2	Bromoform		58.7	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896540**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 08:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 08:00**				
Data File:	**062113V9\9R503L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane		43.5	ug/L	0.300	1.00
75-15-0	Carbon disulfide		273	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride		57.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.7	ug/L	0.300	1.00
75-00-3	Chloroethane		44.1	ug/L	0.300	1.00
67-66-3	Chloroform		50.6	ug/L	0.300	1.00
74-87-3	Chloromethane		43.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		56.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		50.3	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		42.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		49.6	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
100-41-4	Ethylbenzene		50.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		51.1	ug/L	0.300	1.00
74-88-4	Iodomethane		264	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
98-82-8	Isopropylbenzene		50.5	ug/L	0.300	1.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride		44.7	ug/L	3.00	10.0
91-20-3	Naphthalene		49.4	ug/L	0.400	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
100-42-5	Styrene		52.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.1	ug/L	0.300	1.00
108-88-3	Toluene		48.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		51.4	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
108-05-4	Vinyl acetate		288	ug/L	1.50	5.00
75-01-4	Vinyl chloride		45.5	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		51.3	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene		54.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		102	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol		4990	ug/L	15.0	50.0
104-51-8	n-Butylbenzene		52.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.6	ug/L	0.300	1.00
95-47-6	o-Xylene		49.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.8	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896540**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 08:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 08:00**				
Data File:	**062113V9\9R503L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
1634-04-4	tert-Butyl methyl ether		50.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.6	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		53.2	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.9	50.0	ug/L	99.7	(78%-124%)
Bromofluorobenzene	49.0	50.0	ug/L	98.1	(80%-120%)
Toluene-d8	49.0	50.0	ug/L	98.0	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896541**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 08:54**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 08:54**				
Data File:	**062113V9\9R505L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
126-99-8	2-Chloro-1,3-butadiene		46.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
107-02-8	Acrolein		236	ug/L	1.50	5.00
107-13-1	Acrylonitrile		231	ug/L	1.50	5.00
107-05-1	Allyl chloride		237	ug/L	1.50	5.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896541**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 08:54**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 08:54**				
Data File:	**062113V9\9R505L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
97-63-2	Ethyl methacrylate		262	ug/L	1.50	5.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2370	ug/L	15.0	50.0
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
126-98-7	Methacrylonitrile		229	ug/L	1.50	5.00
80-62-6	Methyl methacrylate		249	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
107-12-0	Propionitrile		237	ug/L	1.50	5.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
76-13-1	Trichlorotrifluoroethane		270	ug/L	1.50	5.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1202896541**				
Client Sample:	**QC for batch 1309640**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1309640**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1309640**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**06/21/2013 08:54**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**06/21/2013 08:54**				
Data File:	**062113V9\9R505L1.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.1	50.0	ug/L	104	(78%-124%)
Bromofluorobenzene	53.5	50.0	ug/L	107	(80%-120%)
Toluene-d8	50.2	50.0	ug/L	100	(80%-120%)

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-940

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:	1308465
Prep Batch Number:	1308464

Sample Analysis

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

Sample ID	Client ID
327396003	CAPU-13-34779
327396005	CAPU-13-34769
1202893393	Method Blank (MB)
1202893394	Laboratory Control Sample (LCS)
1202893395	327396003(CAPU-13-34779) Matrix Spike (MS)
1202893396	327396003(CAPU-13-34779) Matrix Spike Duplicate (MSD)

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

Preparation/Analytical Method Verification

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

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, 1202893394 (LCS), recovered p-Nitroaniline at 154%. The limits are 38%-133%. Since p-Nitroaniline was not detected in the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.

QC Sample Designation
Sample 327396003 (CAPU-13-34779) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS, 1202893395 (CAPU-13-34779), recovered p-Nitroaniline at 151%. The limits are 25%-133%. Since p-Nitroaniline 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, 1202893396 (CAPU-13-34779), recovered p-Nitroaniline at 158%. The limits are 25%-133%. Since p-Nitroaniline 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 RPD values between the MS and MSD met the acceptance limits.

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

Technical Information:

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

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

specifications in the method.

Sample Dilutions
The LCS, 1202893394 (LCS), was analyzed at a dilution because of a low upper limit for Benzidine. The data from the diluted analyses have been reported.

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 1195813 was generated for the samples in this batch for this SDG.

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

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

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

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description

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: 2013-940 GEL Work Order: 327396

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

E Concentration of the target analyte exceeds the instrument calibration range

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: 27 JUN 2013 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396003**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34779**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 15:34**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1813.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.410	1.00
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol	U	10.0	ug/L	3.00	10.0
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
62-53-3	Aniline	U	10.0	ug/L	4.20	10.0
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396003**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34779**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 15:34**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1813.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
78-59-1	Isophorone	U	10.0	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396003**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34779**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 15:34**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1813.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	75.5	100	ug/L	75.5	(26%-129%)
2-Fluorobiphenyl	28.8	50.0	ug/L	57.7	(32%-102%)
2-Fluorophenol	41.2	100	ug/L	41.2	(10%-78%)
Nitrobenzene-d5	34.9	50.0	ug/L	69.8	(36%-125%)
Phenol-d5	27.2	100	ug/L	27.2	(10%-104%)
p-Terphenyl-d14	36.8	50.0	ug/L	73.5	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	2.101	16.3	ug/L	95	NJ
	unknown	2.144	33	ug/L	0	J
	unknown	2.497	27.5	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396005**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34769**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 17:11**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1816.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396005**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34769**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 17:11**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1816.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.04	ug/L	0.313	1.04
65-85-0	Benzoic acid	U	20.8	ug/L	6.25	20.8
100-51-6	Benzyl alcohol	U	10.4	ug/L	3.13	10.4
85-68-7	Butylbenzylphthalate	U	10.4	ug/L	3.13	10.4
218-01-9	Chrysene	U	1.04	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	10.4	ug/L	3.13	10.4
117-84-0	Di-n-octylphthalate	U	10.4	ug/L	3.13	10.4
53-70-3	Dibenzo(a,h)anthracene	U	1.04	ug/L	0.313	1.04
132-64-9	Dibenzofuran	U	10.4	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	10.4	ug/L	3.13	10.4
131-11-3	Dimethylphthalate	U	10.4	ug/L	3.13	10.4
88-85-7	Dinoseb	U	10.4	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	10.4	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	1.04	ug/L	0.313	1.04
86-73-7	Fluorene	U	1.04	ug/L	0.313	1.04
118-74-1	Hexachlorobenzene	U	10.4	ug/L	3.13	10.4
87-68-3	Hexachlorobutadiene	U	10.4	ug/L	3.13	10.4
77-47-4	Hexachlorocyclopentadiene	U	10.4	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	10.4	ug/L	3.13	10.4
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.04	ug/L	0.313	1.04
78-59-1	Isophorone	U	10.4	ug/L	3.65	10.4
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.4	ug/L	3.13	10.4
924-16-3	N-Nitrosodi-n-butylamine	U	10.4	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	10.4	ug/L	3.13	10.4
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.4	ug/L	3.13	10.4
930-55-2	N-Nitrosopyrrolidine	U	10.4	ug/L	3.13	10.4
91-20-3	Naphthalene	U	1.04	ug/L	0.313	1.04
98-95-3	Nitrobenzene	U	10.4	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	10.4	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	10.4	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	1.04	ug/L	0.313	1.04
108-95-2	Phenol	U	10.4	ug/L	3.13	10.4
129-00-0	Pyrene	U	1.04	ug/L	0.313	1.04
110-86-1	Pyridine	U	10.4	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	10.4	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	10.4	ug/L	3.13	10.4
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.4	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.4	ug/L	3.13	10.4

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**327396005**	**Date Received:**	**06/12/2013 08:50**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPU-13-34769**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 17:11**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1816.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	73.2	104	ug/L	70.2	(26%-129%)
2-Fluorobiphenyl	26.0	52.1	ug/L	50.0	(32%-102%)
2-Fluorophenol	39.8	104	ug/L	38.2	(10%-78%)
Nitrobenzene-d5	35.7	52.1	ug/L	68.5	(36%-125%)
Phenol-d5	26.2	104	ug/L	25.1	(10%-104%)
p-Terphenyl-d14	42.1	52.1	ug/L	80.8	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	2.112	16.9	ug/L	87	NJ
005076-19-7	Oxirane, trimethyl-	2.149	34.5	ug/L	90	NJ
	unknown	2.502	27.1	ug/L	0	J

Quality Control Summary

Surrogate Recovery Report

SDG Number: 2013-940

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC		PHL %REC		NBZ %REC		FBP %REC		TBP %REC		TPH %REC	
1202893393	MB for batch 1308464	42		28		72		57		76		78	
1202893394	LCS for batch 1308464	41	D	29	D	72	D	64	D	81	D	66	D
327396003	CAPU-13-34779	41		27		70		58		76		74	
1202893395	CAPU-13-34779MS	54		46		69		61		82		61	
1202893396	CAPU-13-34779MSD	53		45		67		58		84		64	
327396005	CAPU-13-34769	38		25		69		50		70		81	

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

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 1308464 **Matrix:** WATER

Lab Sample ID: 1202893394

Instrument: MSD8.I **Analysis Date:** 06/18/2013 15:02 **Dilution:** 2

Analyst: RMB **Prep Batch ID:** 1308464

Inj. Vol: 1 uL **Batch ID:** 1308465

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	20.1	40	18-75
110-86-1	LCS	Pyridine	50.0	0.0	30.6	61	11-88
62-53-3	LCS	Aniline	50.0	0.0	44.1	88	35-107
108-95-2	LCS	Phenol	50.0	0.0	14.8	30	13-77
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	35.0	70	35-111
95-57-8	LCS	2-Chlorophenol	50.0	0.0	34.4	69	39-99
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	25.6	51	25-100
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	26.0	52	24-88
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	26.2	52	27-87
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	30.9	62	23-120
100-51-6	LCS	Benzyl alcohol	50.0	0.0	30.1	60	33-90
95-48-7	LCS	o-Cresol	50.0	0.0	29.6	59	32-90
65794-96-9	LCS	m,p-Cresols	50.0	0.0	31.2	62	28-100
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	40.7	81	39-113
67-72-1	LCS	Hexachloroethane	50.0	0.0	26.3	53	20-85
98-95-3	LCS	Nitrobenzene	50.0	0.0	36.3	73	41-119
78-59-1	LCS	Isophorone	50.0	0.0	37.7	75	49-133
88-75-5	LCS	2-Nitrophenol	50.0	0.0	32.9	66	42-111
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	33.5	67	43-99
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	37.9	76	44-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	33.8	68	45-106
65-85-0	LCS	Benzoic acid	100	0.0	38.6	39	10-81

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1308464
Matrix: WATER
Lab Sample ID: 1202893394
Instrument: MSD8.I
Analysis Date: 06/18/2013 15:02
Dilution: 2
Analyst: RMB
Prep Batch ID: 1308464
Inj. Vol: 1 uL
Batch ID: 1308465

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	49.4	99	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	26.9	54	19-92
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	34.6	69	46-111
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	25.0	50	33-102
91-20-3	LCS	Naphthalene	50.0	0.0	27.9	56	31-98
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	27.6	55	35-106
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	11.5	23	15-72
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	35.8	72	41-109
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	37.6	75	41-111
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	30.7	61	36-98
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	45.3	91	44-117
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	56.0	112	45-124
131-11-3	LCS	Dimethylphthalate	50.0	0.0	39.1	78	53-112
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	40.5	81	45-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	31.3	63	37-107
83-32-9	LCS	Acenaphthene	50.0	0.0	28.9	58	40-104
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	20.7	41	19-110
132-64-9	LCS	Dibenzofuran	50.0	0.0	33.2	66	45-107
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	35.3	71	45-120
84-66-2	LCS	Diethylphthalate	50.0	0.0	39.7	79	51-116
100-02-7	LCS	4-Nitrophenol	50.0	0.0	24.3	49	16-77

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-940** **Sample Type:** **Laboratory Control Sample**

Client ID: **LCS for batch 1308464** **Matrix:** **WATER**

Lab Sample ID: **1202893394**

Instrument: **MSD8.I** **Analysis Date:** **06/18/2013 15:02** **Dilution:** **2**

Analyst: **RMB** **Prep Batch ID:** **1308464**

Inj. Vol: **1 uL** **Batch ID:** **1308465**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	34.0	68	43-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	34.1	68	40-114
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	77.0	154 *	38-133
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	22.5	45	34-114
122-39-4	LCS	Diphenylamine	50.0	0.0	38.6	77	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	34.2	68	40-112
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	34.6	69	41-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	35.6	71	43-116
87-86-5	LCS	Pentachlorophenol	50.0	0.0	21.0	42	27-102
85-01-8	LCS	Phenanthrene	50.0	0.0	33.2	66	47-111
120-12-7	LCS	Anthracene	50.0	0.0	33.5	67	46-110
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	35.4	71	49-116
206-44-0	LCS	Fluoranthene	50.0	0.0	34.1	68	45-118
129-00-0	LCS	Pyrene	50.0	0.0	30.5	61	38-127
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	30.9	62	40-122
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	32.6	65	37-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	32.5	65	49-111
218-01-9	LCS	Chrysene	50.0	0.0	22.7	45	44-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	29.9	60	33-122
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	33.1	66	47-117
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	33.3	67	46-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	30.1	60	47-110

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1308464
Matrix: WATER
Lab Sample ID: 1202893394
Instrument: MSD8.I
Analysis Date: 06/18/2013 15:02
Dilution: 2
Analyst: RMB
Prep Batch ID: 1308464
Inj. Vol: 1 uL
Batch ID: 1308465

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	32.8	66	37-125
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	34.3	69	36-125
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	30.9	62	33-126
123-91-1	LCS	1,4-Dioxane	50.0	0.0	22.1	44	26-73
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	33.5	67	42-106
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	30.5	61	36-95
1912-24-9	LCS	Atrazine	50.0	0.0	42.8	86	47-115
92-87-5	LCS	Benzidine	100	0.0	78.1	78	10-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	32.2	64	31-113
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	26.3	53	26-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike

Client ID: CAPU-13-34779MS **Matrix:** W

Lab Sample ID: 1202893395

Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:07 **Dilution:** 1

Analyst: RMB **Prep Batch ID:** 1308464

Inj. Vol: 1 uL **Batch ID:** 1308465

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	105	0.00	U	56.3	53	21-88
110-86-1	MS	Pyridine	105	0.00	U	83.3	79	14-94
62-53-3	MS	Aniline	105	0.00	U	95.4	91	24-109
108-95-2	MS	Phenol	105	0.00	U	49.6	47	10-88
111-44-4	MS	bis(2-Chloroethyl) ether	105	0.00	U	71.5	68	25-114
95-57-8	MS	2-Chlorophenol	105	0.00	U	73.3	70	31-103
541-73-1	MS	1,3-Dichlorobenzene	105	0.00	U	52.1	49	18-83
106-46-7	MS	1,4-Dichlorobenzene	105	0.00	U	53.3	51	20-86
95-50-1	MS	1,2-Dichlorobenzene	105	0.00	U	55.0	52	21-85
39638-32-9	MS	bis(2-Chloroisopropyl)ether	105	0.00	U	65.4	62	16-121
100-51-6	MS	Benzyl alcohol	105	0.00	U	72.5	69	31-100
95-48-7	MS	o-Cresol	105	0.00	U	68.5	65	26-97
65794-96-9	MS	m,p-Cresols	105	0.00	U	79.3	75	24-110
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	105	0.00	U	81.7	78	29-116
67-72-1	MS	Hexachloroethane	105	0.00	U	52.8	50	17-82
98-95-3	MS	Nitrobenzene	105	0.00	U	73.8	70	32-126
78-59-1	MS	Isophorone	105	0.00	U	74.9	71	36-139
88-75-5	MS	2-Nitrophenol	105	0.00	U	67.5	64	29-117
105-67-9	MS	2,4-Dimethylphenol	105	0.00	U	67.5	64	28-107
111-91-1	MS	bis(2-Chloroethoxy)methane	105	0.00	U	74.6	71	34-112
120-83-2	MS	2,4-Dichlorophenol	105	0.00	U	69.7	66	34-111
65-85-0	MS	Benzoic acid	211	0.00	U	84.2	40	10-105

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike

Client ID: CAPU-13-34779MS **Matrix:** W

Lab Sample ID: 1202893395

Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:07 **Dilution:** 1

Analyst: RMB **Prep Batch ID:** 1308464

Inj. Vol: 1 uL **Batch ID:** 1308465

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	105	0.00	U	97.7	93	28-123
87-68-3	MS	Hexachlorobutadiene	105	0.00	U	55.8	53	11-97
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	105	0.00	U	73.3	70	31-119
91-57-6	MS	2-Methylnaphthalene	105	0.00	U	60.4	57	26-103
91-20-3	MS	Naphthalene	105	0.00	U	62.4	59	25-100
90-12-0	MS	1-Methylnaphthalene	105	0.00	U	63.9	61	27-107
77-47-4	MS	Hexachlorocyclopentadiene	105	0.00	U	36.2	34	14-73
88-06-2	MS	2,4,6-Trichlorophenol	105	0.00	U	75.2	71	31-113
95-95-4	MS	2,4,5-Trichlorophenol	105	0.00	U	79.6	76	30-117
91-58-7	MS	2-Chloronaphthalene	105	0.00	U	72.9	69	30-97
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	105	0.00	U	94.4	90	28-122
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	105	0.00	U	119	113	29-125
131-11-3	MS	Dimethylphthalate	105	0.00	U	77.5	74	41-116
606-20-2	MS	2,6-Dinitrotoluene	105	0.00	U	81.3	77	40-123
121-14-2	MS	2,4-Dinitrotoluene	105	0.00	U	84.2	80	34-126
208-96-8	MS	Acenaphthylene	105	0.00	U	71.5	68	33-104
83-32-9	MS	Acenaphthene	105	0.00	U	67.2	64	31-103
51-28-5	MS	2,4-Dinitrophenol	105	0.00	U	39.9	38	17-110
132-64-9	MS	Dibenzofuran	105	0.00	U	76.0	72	36-107
58-90-2	MS	2,3,4,6-Tetrachlorophenol	105	0.00	U	78.4	75	29-126
84-66-2	MS	Diethylphthalate	105	0.00	U	79.8	76	41-117
100-02-7	MS	4-Nitrophenol	105	0.00	U	53.9	51	16-71

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike
Client ID: CAPU-13-34779MS **Matrix:** W
Lab Sample ID: 1202893395
Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:07 **Dilution:** 1
Analyst: RMB **Prep Batch ID:** 1308464
Inj. Vol: 1 uL **Batch ID:** 1308465

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	105	0.00	U	76.8	73	32-111
7005-72-3	MS	4-Chlorophenylphenylether	105	0.00	U	77.3	73	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	105	0.00	U	159	151 *	25-133
534-52-1	MS	2-Methyl-4,6-dinitrophenol	105	0.00	U	59.7	57	22-118
122-39-4	MS	Diphenylamine	105	0.00	U	78.4	75	34-111
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	105	0.00	U	73.5	70	30-112
101-55-3	MS	4-Bromophenylphenylether	105	0.00	U	77.3	73	32-111
118-74-1	MS	Hexachlorobenzene	105	0.00	U	77.8	74	33-115
87-86-5	MS	Pentachlorophenol	105	0.00	U	58.2	55	19-112
85-01-8	MS	Phenanthrene	105	0.00	U	73.5	70	34-112
120-12-7	MS	Anthracene	105	0.00	U	74.0	70	33-108
84-74-2	MS	Di-n-butylphthalate	105	0.00	U	75.1	71	35-118
206-44-0	MS	Fluoranthene	105	0.00	U	74.5	71	31-118
129-00-0	MS	Pyrene	105	0.00	U	64.0	61	27-126
85-68-7	MS	Butylbenzylphthalate	105	0.00	U	65.9	63	29-121
117-81-7	MS	bis(2-Ethylhexyl)phthalate	105	0.00	U	68.7	65	29-120
56-55-3	MS	Benzo(a)anthracene	105	0.00	U	71.7	68	35-112
218-01-9	MS	Chrysene	105	0.00	U	58.5	56	32-116
117-84-0	MS	Di-n-octylphthalate	105	0.00	U	67.3	64	25-118
205-99-2	MS	Benzo(b)fluoranthene	105	0.00	U	69.5	66	34-116
207-08-9	MS	Benzo(k)fluoranthene	105	0.00	U	68.0	65	34-119
50-32-8	MS	Benzo(a)pyrene	105	0.00	U	67.0	64	34-110

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike

Client ID: CAPU-13-34779MS **Matrix:** W

Lab Sample ID: 1202893395

Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:07 **Dilution:** 1

Analyst: RMB **Prep Batch ID:** 1308464

Inj. Vol: 1 uL **Batch ID:** 1308465

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	105	0.00	U	76.6	73	25-122
53-70-3	MS	Dibenzo(a,h)anthracene	105	0.00	U	81.1	77	24-123
191-24-2	MS	Benzo(ghi)perylene	105	0.00	U	72.6	69	22-122
123-91-1	MS	1,4-Dioxane	105	0.00	U	58.5	56	26-88
930-55-2	MS	N-Nitrosopyrrolidine	105	0.00	U	74.3	71	42-110
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	105	0.00	U	73.0	69	29-96
1912-24-9	MS	Atrazine	105	0.00	U	78.7	75	33-121
92-87-5	MS	Benzidine	211	0.00	U	150	71	10-117
91-94-1	MS	3,3'-Dichlorobenzidine	105	0.00	U	79.5	76	22-111
120-82-1	MS	1,2,4-Trichlorobenzene	105	0.00	U	58.4	55	20-90

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940
Sample Type: Matrix Spike Duplicate
Client ID: CAPU-13-34779MSD
Matrix: W
Lab Sample ID: 1202893396
Instrument: MSD8.I
Analysis Date: 06/18/2013 16:39
Dilution: 1
Analyst: RMB
Prep Batch ID: 1308464
Inj. Vol: 1 uL
Batch ID: 1308465

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	105	0.00	U	57.6	55	21-88	2	0-30
110-86-1	MSD	Pyridine	105	0.00	U	87.8	83	14-94	5	0-30
62-53-3	MSD	Aniline	105	0.00	U	99.9	95	24-109	5	0-30
108-95-2	MSD	Phenol	105	0.00	U	50.8	48	10-88	2	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	105	0.00	U	74.6	71	25-114	4	0-30
95-57-8	MSD	2-Chlorophenol	105	0.00	U	76.5	73	31-103	4	0-30
541-73-1	MSD	1,3-Dichlorobenzene	105	0.00	U	54.3	52	18-83	4	0-30
106-46-7	MSD	1,4-Dichlorobenzene	105	0.00	U	55.3	53	20-86	4	0-30
95-50-1	MSD	1,2-Dichlorobenzene	105	0.00	U	57.3	54	21-85	4	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	105	0.00	U	67.8	64	16-121	4	0-30
100-51-6	MSD	Benzyl alcohol	105	0.00	U	75.1	71	31-100	3	0-30
95-48-7	MSD	o-Cresol	105	0.00	U	71.1	68	26-97	4	0-30
65794-96-9	MSD	m,p-Cresols	105	0.00	U	81.2	77	24-110	2	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	105	0.00	U	83.6	79	29-116	2	0-30
67-72-1	MSD	Hexachloroethane	105	0.00	U	54.8	52	17-82	4	0-30
98-95-3	MSD	Nitrobenzene	105	0.00	U	76.7	73	32-126	4	0-30
78-59-1	MSD	Isophorone	105	0.00	U	76.8	73	36-139	3	0-30
88-75-5	MSD	2-Nitrophenol	105	0.00	U	68.8	65	29-117	2	0-30
105-67-9	MSD	2,4-Dimethylphenol	105	0.00	U	68.2	65	28-107	1	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	105	0.00	U	75.9	72	34-112	2	0-30
120-83-2	MSD	2,4-Dichlorophenol	105	0.00	U	70.3	67	34-111	1	0-30
65-85-0	MSD	Benzoic acid	211	0.00	U	80.6	38	10-105	4	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike Duplicate
Client ID: CAPU-13-34779MSD **Matrix:** W
Lab Sample ID: 1202893396
Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:39 **Dilution:** 1
Analyst: RMB **Prep Batch ID:** 1308464
Inj. Vol: 1 uL **Batch ID:** 1308465

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	105	0.00	U	101	96	28-123	3	0-30
87-68-3	MSD	Hexachlorobutadiene	105	0.00	U	56.7	54	11-97	2	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	105	0.00	U	73.2	70	31-119	0	0-30
91-57-6	MSD	2-Methylnaphthalene	105	0.00	U	60.9	58	26-103	1	0-30
91-20-3	MSD	Naphthalene	105	0.00	U	64.0	61	25-100	3	0-30
90-12-0	MSD	1-Methylnaphthalene	105	0.00	U	64.9	62	27-107	2	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	105	0.00	U	38.1	36	14-73	5	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	105	0.00	U	76.5	73	31-113	2	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	105	0.00	U	78.8	75	30-117	1	0-30
91-58-7	MSD	2-Chloronaphthalene	105	0.00	U	75.4	72	30-97	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	105	0.00	U	97.1	92	28-122	3	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	105	0.00	U	125	119	29-125	5	0-30
131-11-3	MSD	Dimethylphthalate	105	0.00	U	80.9	77	41-116	4	0-30
606-20-2	MSD	2,6-Dinitrotoluene	105	0.00	U	82.6	78	40-123	2	0-30
121-14-2	MSD	2,4-Dinitrotoluene	105	0.00	U	87.2	83	34-126	3	0-30
208-96-8	MSD	Acenaphthylene	105	0.00	U	72.8	69	33-104	2	0-30
83-32-9	MSD	Acenaphthene	105	0.00	U	68.9	65	31-103	2	0-30
51-28-5	MSD	2,4-Dinitrophenol	105	0.00	U	39.6	38	17-110	1	0-30
132-64-9	MSD	Dibenzofuran	105	0.00	U	77.3	73	36-107	2	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	105	0.00	U	79.0	75	29-126	1	0-30
84-66-2	MSD	Diethylphthalate	105	0.00	U	81.3	77	41-117	2	0-30
100-02-7	MSD	4-Nitrophenol	105	0.00	U	53.8	51	16-71	0	0-30

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike Duplicate
Client ID: CAPU-13-34779MSD **Matrix:** W
Lab Sample ID: 1202893396
Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:39 **Dilution:** 1
Analyst: RMB **Prep Batch ID:** 1308464
Inj. Vol: 1 uL **Batch ID:** 1308465

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	105	0.00	U	77.4	74	32-111	1	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	105	0.00	U	79.1	75	30-112	2	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	105	0.00	U	167	158 *	25-133	5	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	105	0.00	U	60.1	57	22-118	1	0-30
122-39-4	MSD	Diphenylamine	105	0.00	U	81.6	78	34-111	4	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	105	0.00	U	75.5	72	30-112	3	0-30
101-55-3	MSD	4-Bromophenylphenylether	105	0.00	U	78.8	75	32-111	2	0-30
118-74-1	MSD	Hexachlorobenzene	105	0.00	U	80.8	77	33-115	4	0-30
87-86-5	MSD	Pentachlorophenol	105	0.00	U	57.8	55	19-112	1	0-30
85-01-8	MSD	Phenanthrene	105	0.00	U	75.5	72	34-112	3	0-30
120-12-7	MSD	Anthracene	105	0.00	U	76.6	73	33-108	3	0-30
84-74-2	MSD	Di-n-butylphthalate	105	0.00	U	77.9	74	35-118	4	0-30
206-44-0	MSD	Fluoranthene	105	0.00	U	77.9	74	31-118	4	0-30
129-00-0	MSD	Pyrene	105	0.00	U	65.3	62	27-126	2	0-30
85-68-7	MSD	Butylbenzylphthalate	105	0.00	U	67.1	64	29-121	2	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	105	0.00	U	70.1	67	29-120	2	0-30
56-55-3	MSD	Benzo(a)anthracene	105	0.00	U	74.4	71	35-112	4	0-30
218-01-9	MSD	Chrysene	105	0.00	U	59.3	56	32-116	1	0-30
117-84-0	MSD	Di-n-octylphthalate	105	0.00	U	68.6	65	25-118	2	0-30
205-99-2	MSD	Benzo(b)fluoranthene	105	0.00	U	72.7	69	34-116	5	0-30
207-08-9	MSD	Benzo(k)fluoranthene	105	0.00	U	69.5	66	34-119	2	0-30
50-32-8	MSD	Benzo(a)pyrene	105	0.00	U	71.3	68	34-110	6	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-940 **Sample Type:** Matrix Spike Duplicate
Client ID: CAPU-13-34779MSD **Matrix:** W
Lab Sample ID: 1202893396
Instrument: MSD8.I **Analysis Date:** 06/18/2013 16:39 **Dilution:** 1
Analyst: RMB **Prep Batch ID:** 1308464
Inj. Vol: 1 uL **Batch ID:** 1308465

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	105	0.00	U	77.9	74	25-122	2	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	105	0.00	U	81.3	77	24-123	0	0-30
191-24-2	MSD Benzo(ghi)perylene	105	0.00	U	74.2	70	22-122	2	0-30
123-91-1	MSD 1,4-Dioxane	105	0.00	U	60.5	58	26-88	3	0-30
930-55-2	MSD N-Nitrosopyrrolidine	105	0.00	U	76.4	73	42-110	3	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	105	0.00	U	75.8	72	29-96	4	0-30
1912-24-9	MSD Atrazine	105	0.00	U	82.8	79	33-121	5	0-30
92-87-5	MSD Benzidine	211	0.00	U	195	93	10-117	26	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	105	0.00	U	80.2	76	22-111	1	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	105	0.00	U	59.9	57	20-90	3	0-30

Method Blank Summary

SDG Number:	**2013-940**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1308464**	**Instrument ID:**	**MSD8.I**	**Data File:**	**s061813.B\s8F1811.D**
Lab Sample ID:	**1202893393**	**Prep Date:**	**06/17/2013 17:55**	**Analyzed:**	**06/18/13 14:30**
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 1308464	1202893394	s061813.B\s8F1812.D	06/18/13	1502
02	CAPU-13-34779	327396003	s061813.B\s8F1813.D	06/18/13	1534
03	CAPU-13-34779MS	1202893395	s061813.B\s8F1814.D	06/18/13	1607
04	CAPU-13-34779MSD	1202893396	s061813.B\s8F1815.D	06/18/13	1639
05	CAPU-13-34769	327396005	s061813.B\s8F1816.D	06/18/13	1711

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**WATER**
Lab Sample ID:	**1202893393**				
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1308464**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 14:30**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1811.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.410	1.00
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol	U	10.0	ug/L	3.00	10.0
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
62-53-3	Aniline	U	10.0	ug/L	4.20	10.0
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.90	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**WATER**
Lab Sample ID:	**1202893393**				
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1308464**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 14:30**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1811.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
78-59-1	Isophorone	U	10.0	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**WATER**
Lab Sample ID:	**1202893393**				
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1308464**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 14:30**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1811.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	76.3	100	ug/L	76.3	(26%-129%)
2-Fluorobiphenyl	28.7	50.0	ug/L	57.5	(32%-102%)
2-Fluorophenol	42.2	100	ug/L	42.2	(10%-78%)
Nitrobenzene-d5	35.8	50.0	ug/L	71.6	(36%-125%)
Phenol-d5	28.4	100	ug/L	28.4	(10%-104%)
p-Terphenyl-d14	39.0	50.0	ug/L	78.0	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.095	20.2	ug/L	0	J
	unknown	2.144	42.9	ug/L	0	J
	unknown	2.497	24.7	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**WATER**
Lab Sample ID:	**1202893394**				
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1308464**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**2**
Run Date:	**06/18/2013 15:02**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1812.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		30.5	ug/L	6.00	20.0
120-82-1	1,2,4-Trichlorobenzene		26.3	ug/L	6.00	20.0
95-50-1	1,2-Dichlorobenzene		26.2	ug/L	6.00	20.0
122-66-7	Azobenzene		34.2	ug/L	6.00	20.0
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		25.6	ug/L	6.00	20.0
106-46-7	1,4-Dichlorobenzene		26.0	ug/L	6.00	20.0
123-91-1	1,4-Dioxane		22.1	ug/L	6.00	20.0
90-12-0	1-Methylnaphthalene		27.6	ug/L	0.600	2.00
58-90-2	2,3,4,6-Tetrachlorophenol		35.3	ug/L	6.00	20.0
95-95-4	2,4,5-Trichlorophenol		37.6	ug/L	6.00	20.0
88-06-2	2,4,6-Trichlorophenol		35.8	ug/L	6.00	20.0
120-83-2	2,4-Dichlorophenol		33.8	ug/L	6.00	20.0
105-67-9	2,4-Dimethylphenol		33.5	ug/L	6.00	20.0
51-28-5	2,4-Dinitrophenol	J	20.7	ug/L	10.0	40.0
121-14-2	2,4-Dinitrotoluene		40.5	ug/L	6.00	20.0
606-20-2	2,6-Dinitrotoluene		38.7	ug/L	6.00	20.0
91-58-7	2-Chloronaphthalene		30.7	ug/L	0.820	2.00
95-57-8	2-Chlorophenol		34.4	ug/L	6.00	20.0
534-52-1	2-Methyl-4,6-dinitrophenol		22.5	ug/L	6.00	20.0
91-57-6	2-Methylnaphthalene		25.0	ug/L	0.600	2.00
88-75-5	2-Nitrophenol		32.9	ug/L	6.00	20.0
91-94-1	3,3'-Dichlorobenzidine		32.2	ug/L	6.00	20.0
101-55-3	4-Bromophenylphenylether		34.6	ug/L	6.00	20.0
59-50-7	Parachlorometa cresol		34.6	ug/L	6.00	20.0
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		49.4	ug/L	6.60	20.0
7005-72-3	4-Chlorophenylphenylether		34.1	ug/L	6.00	20.0
100-02-7	4-Nitrophenol		24.3	ug/L	6.00	20.0
83-32-9	Acenaphthene		28.9	ug/L	0.600	2.00
208-96-8	Acenaphthylene		31.3	ug/L	0.600	2.00
62-53-3	Aniline		44.1	ug/L	8.40	20.0
120-12-7	Anthracene		33.5	ug/L	0.600	2.00
1912-24-9	Atrazine		42.8	ug/L	6.00	20.0
92-87-5	Benzidine		78.1	ug/L	7.80	20.0
56-55-3	Benzo(a)anthracene		32.5	ug/L	0.600	2.00
50-32-8	Benzo(a)pyrene		30.1	ug/L	0.600	2.00
205-99-2	Benzo(b)fluoranthene		33.1	ug/L	0.600	2.00
191-24-2	Benzo(ghi)perylene		30.9	ug/L	0.600	2.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**WATER**
Lab Sample ID:	**1202893394**				
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1308464**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**2**
Run Date:	**06/18/2013 15:02**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1812.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		33.3	ug/L	0.600	2.00
65-85-0	Benzoic acid	J	38.6	ug/L	12.0	40.0
100-51-6	Benzyl alcohol		30.1	ug/L	6.00	20.0
85-68-7	Butylbenzylphthalate		30.9	ug/L	6.00	20.0
218-01-9	Chrysene		22.7	ug/L	0.600	2.00
84-74-2	Di-n-butylphthalate		35.4	ug/L	6.00	20.0
117-84-0	Di-n-octylphthalate		29.9	ug/L	6.00	20.0
53-70-3	Dibenzo(a,h)anthracene		34.3	ug/L	0.600	2.00
132-64-9	Dibenzofuran		33.2	ug/L	6.00	20.0
84-66-2	Diethylphthalate		39.7	ug/L	6.00	20.0
131-11-3	Dimethylphthalate		39.1	ug/L	6.00	20.0
88-85-7	Dinoseb	U	20.0	ug/L	6.00	20.0
122-39-4	Diphenylamine		38.6	ug/L	6.00	20.0
206-44-0	Fluoranthene		34.1	ug/L	0.600	2.00
86-73-7	Fluorene		34.0	ug/L	0.600	2.00
118-74-1	Hexachlorobenzene		35.6	ug/L	6.00	20.0
87-68-3	Hexachlorobutadiene		26.9	ug/L	6.00	20.0
77-47-4	Hexachlorocyclopentadiene	J	11.5	ug/L	6.00	20.0
67-72-1	Hexachloroethane		26.3	ug/L	6.00	20.0
193-39-5	Indeno(1,2,3-cd)pyrene		32.8	ug/L	0.600	2.00
78-59-1	Isophorone		37.7	ug/L	7.00	20.0
62-75-9	N-Methyl-N-nitrosomethylamine		20.1	ug/L	6.00	20.0
924-16-3	N-Nitrosodi-n-butylamine	U	20.0	ug/L	6.00	20.0
55-18-5	N-Nitrosodiethylamine	U	20.0	ug/L	6.00	20.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		40.7	ug/L	6.00	20.0
930-55-2	N-Nitrosopyrrolidine		33.5	ug/L	6.00	20.0
91-20-3	Naphthalene		27.9	ug/L	0.600	2.00
98-95-3	Nitrobenzene		36.3	ug/L	6.00	20.0
608-93-5	Pentachlorobenzene	U	20.0	ug/L	6.00	20.0
87-86-5	Pentachlorophenol		21.0	ug/L	6.00	20.0
85-01-8	Phenanthrene		33.2	ug/L	0.600	2.00
108-95-2	Phenol	J	14.8	ug/L	6.00	20.0
129-00-0	Pyrene		30.5	ug/L	0.600	2.00
110-86-1	Pyridine		30.6	ug/L	6.00	20.0
111-91-1	bis(2-Chloroethoxy)methane		37.9	ug/L	6.00	20.0
111-44-4	bis(2-Chloroethyl) ether		35.0	ug/L	6.00	20.0
39638-32-9	bis(2-Chloroisopropyl)ether		30.9	ug/L	6.00	20.0
117-81-7	bis(2-Ethylhexyl)phthalate		32.6	ug/L	6.00	20.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**			**Matrix:**	**WATER**
Lab Sample ID:	**1202893394**				
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1308464**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**2**
Run Date:	**06/18/2013 15:02**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1812.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		31.2	ug/L	7.40	20.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		56.0	ug/L	6.00	20.0
95-48-7	o-Cresol		29.6	ug/L	6.00	20.0
88-74-4	2-Nitroaniline *o-Nitroaniline*		45.3	ug/L	6.00	20.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		77.0	ug/L	6.00	20.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.3	100	ug/L	81.3	(26%-129%)
2-Fluorobiphenyl	32.0	50.0	ug/L	64.0	(32%-102%)
2-Fluorophenol	40.8	100	ug/L	40.8	(10%-78%)
Nitrobenzene-d5	36.1	50.0	ug/L	72.2	(36%-125%)
Phenol-d5	29.1	100	ug/L	29.1	(10%-104%)
p-Terphenyl-d14	33.2	50.0	ug/L	66.4	(34%-135%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**1202893395**	**Date Received:**	**06/12/2013 08:50**		
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPU-13-34779MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 16:07**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**475 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1814.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		73.0	ug/L	6.32	21.1
120-82-1	1,2,4-Trichlorobenzene		58.4	ug/L	6.32	21.1
95-50-1	1,2-Dichlorobenzene		55.0	ug/L	6.32	21.1
122-66-7	Azobenzene		73.5	ug/L	6.32	21.1
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		52.1	ug/L	6.32	21.1
106-46-7	1,4-Dichlorobenzene		53.3	ug/L	6.32	21.1
123-91-1	1,4-Dioxane		58.5	ug/L	6.32	21.1
90-12-0	1-Methylnaphthalene		63.9	ug/L	0.632	2.11
58-90-2	2,3,4,6-Tetrachlorophenol		78.4	ug/L	6.32	21.1
95-95-4	2,4,5-Trichlorophenol		79.6	ug/L	6.32	21.1
88-06-2	2,4,6-Trichlorophenol		75.2	ug/L	6.32	21.1
120-83-2	2,4-Dichlorophenol		69.7	ug/L	6.32	21.1
105-67-9	2,4-Dimethylphenol		67.5	ug/L	6.32	21.1
51-28-5	2,4-Dinitrophenol	J	39.9	ug/L	10.5	42.1
121-14-2	2,4-Dinitrotoluene		84.2	ug/L	6.32	21.1
606-20-2	2,6-Dinitrotoluene		81.3	ug/L	6.32	21.1
91-58-7	2-Chloronaphthalene		72.9	ug/L	0.863	2.11
95-57-8	2-Chlorophenol		73.3	ug/L	6.32	21.1
534-52-1	2-Methyl-4,6-dinitrophenol		59.7	ug/L	6.32	21.1
91-57-6	2-Methylnaphthalene		60.4	ug/L	0.632	2.11
88-75-5	2-Nitrophenol		67.5	ug/L	6.32	21.1
91-94-1	3,3'-Dichlorobenzidine		79.5	ug/L	6.32	21.1
101-55-3	4-Bromophenylphenylether		77.3	ug/L	6.32	21.1
59-50-7	Parachlorometa cresol		73.3	ug/L	6.32	21.1
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		97.7	ug/L	6.95	21.1
7005-72-3	4-Chlorophenylphenylether		77.3	ug/L	6.32	21.1
100-02-7	4-Nitrophenol		53.9	ug/L	6.32	21.1
83-32-9	Acenaphthene		67.2	ug/L	0.632	2.11
208-96-8	Acenaphthylene		71.5	ug/L	0.632	2.11
62-53-3	Aniline		95.4	ug/L	8.84	21.1
120-12-7	Anthracene		74.0	ug/L	0.632	2.11
1912-24-9	Atrazine		78.7	ug/L	6.32	21.1
92-87-5	Benzidine		150	ug/L	8.21	21.1
56-55-3	Benzo(a)anthracene		71.7	ug/L	0.632	2.11
50-32-8	Benzo(a)pyrene		67.0	ug/L	0.632	2.11
205-99-2	Benzo(b)fluoranthene		69.5	ug/L	0.632	2.11
191-24-2	Benzo(ghi)perylene		72.6	ug/L	0.632	2.11

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**1202893395**	**Date Received:**	**06/12/2013 08:50**		
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPU-13-34779MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 16:07**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**475 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1814.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		68.0	ug/L	0.632	2.11
65-85-0	Benzoic acid		84.2	ug/L	12.6	42.1
100-51-6	Benzyl alcohol		72.5	ug/L	6.32	21.1
85-68-7	Butylbenzylphthalate		65.9	ug/L	6.32	21.1
218-01-9	Chrysene		58.5	ug/L	0.632	2.11
84-74-2	Di-n-butylphthalate		75.1	ug/L	6.32	21.1
117-84-0	Di-n-octylphthalate		67.3	ug/L	6.32	21.1
53-70-3	Dibenzo(a,h)anthracene		81.1	ug/L	0.632	2.11
132-64-9	Dibenzofuran		76.0	ug/L	6.32	21.1
84-66-2	Diethylphthalate		79.8	ug/L	6.32	21.1
131-11-3	Dimethylphthalate		77.5	ug/L	6.32	21.1
88-85-7	Dinoseb	U	21.1	ug/L	6.32	21.1
122-39-4	Diphenylamine		78.4	ug/L	6.32	21.1
206-44-0	Fluoranthene		74.5	ug/L	0.632	2.11
86-73-7	Fluorene		76.8	ug/L	0.632	2.11
118-74-1	Hexachlorobenzene		77.8	ug/L	6.32	21.1
87-68-3	Hexachlorobutadiene		55.8	ug/L	6.32	21.1
77-47-4	Hexachlorocyclopentadiene		36.2	ug/L	6.32	21.1
67-72-1	Hexachloroethane		52.8	ug/L	6.32	21.1
193-39-5	Indeno(1,2,3-cd)pyrene		76.6	ug/L	0.632	2.11
78-59-1	Isophorone		74.9	ug/L	7.37	21.1
62-75-9	N-Methyl-N-nitrosomethylamine		56.3	ug/L	6.32	21.1
924-16-3	N-Nitrosodi-n-butylamine	U	21.1	ug/L	6.32	21.1
55-18-5	N-Nitrosodiethylamine	U	21.1	ug/L	6.32	21.1
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		81.7	ug/L	6.32	21.1
930-55-2	N-Nitrosopyrrolidine		74.3	ug/L	6.32	21.1
91-20-3	Naphthalene		62.4	ug/L	0.632	2.11
98-95-3	Nitrobenzene		73.8	ug/L	6.32	21.1
608-93-5	Pentachlorobenzene	U	21.1	ug/L	6.32	21.1
87-86-5	Pentachlorophenol		58.2	ug/L	6.32	21.1
85-01-8	Phenanthrene		73.5	ug/L	0.632	2.11
108-95-2	Phenol		49.6	ug/L	6.32	21.1
129-00-0	Pyrene		64.0	ug/L	0.632	2.11
110-86-1	Pyridine		83.3	ug/L	6.32	21.1
111-91-1	bis(2-Chloroethoxy)methane		74.6	ug/L	6.32	21.1
111-44-4	bis(2-Chloroethyl) ether		71.5	ug/L	6.32	21.1
39638-32-9	bis(2-Chloroisopropyl)ether		65.4	ug/L	6.32	21.1
117-81-7	bis(2-Ethylhexyl)phthalate		68.7	ug/L	6.32	21.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**1202893395**	**Date Received:**	**06/12/2013 08:50**		
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPU-13-34779MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 16:07**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**475 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1814.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		79.3	ug/L	7.79	21.1
99-09-2	3-Nitroaniline *m-Nitroaniline*		119	ug/L	6.32	21.1
95-48-7	o-Cresol		68.5	ug/L	6.32	21.1
88-74-4	2-Nitroaniline *o-Nitroaniline*		94.4	ug/L	6.32	21.1
100-01-6	4-Nitroaniline *p-Nitroaniline*		159	ug/L	6.32	21.1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	172	211	ug/L	81.7	(26%-129%)
2-Fluorobiphenyl	63.8	105	ug/L	60.6	(32%-102%)
2-Fluorophenol	114	211	ug/L	54.1	(10%-78%)
Nitrobenzene-d5	72.1	105	ug/L	68.5	(36%-125%)
Phenol-d5	96.7	211	ug/L	45.9	(10%-104%)
p-Terphenyl-d14	64.7	105	ug/L	61.4	(34%-135%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**1202893396**	**Date Received:**	**06/12/2013 08:50**		
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPU-13-34779MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 16:39**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**475 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1815.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		75.8	ug/L	6.32	21.1
120-82-1	1,2,4-Trichlorobenzene		59.9	ug/L	6.32	21.1
95-50-1	1,2-Dichlorobenzene		57.3	ug/L	6.32	21.1
122-66-7	Azobenzene		75.5	ug/L	6.32	21.1
	1,2-Diphenylhydrazine					
541-73-1	1,3-Dichlorobenzene		54.3	ug/L	6.32	21.1
106-46-7	1,4-Dichlorobenzene		55.3	ug/L	6.32	21.1
123-91-1	1,4-Dioxane		60.5	ug/L	6.32	21.1
90-12-0	1-Methylnaphthalene		64.9	ug/L	0.632	2.11
58-90-2	2,3,4,6-Tetrachlorophenol		79.0	ug/L	6.32	21.1
95-95-4	2,4,5-Trichlorophenol		78.8	ug/L	6.32	21.1
88-06-2	2,4,6-Trichlorophenol		76.5	ug/L	6.32	21.1
120-83-2	2,4-Dichlorophenol		70.3	ug/L	6.32	21.1
105-67-9	2,4-Dimethylphenol		68.2	ug/L	6.32	21.1
51-28-5	2,4-Dinitrophenol	J	39.6	ug/L	10.5	42.1
121-14-2	2,4-Dinitrotoluene		87.2	ug/L	6.32	21.1
606-20-2	2,6-Dinitrotoluene		82.6	ug/L	6.32	21.1
91-58-7	2-Chloronaphthalene		75.4	ug/L	0.863	2.11
95-57-8	2-Chlorophenol		76.5	ug/L	6.32	21.1
534-52-1	2-Methyl-4,6-dinitrophenol		60.1	ug/L	6.32	21.1
91-57-6	2-Methylnaphthalene		60.9	ug/L	0.632	2.11
88-75-5	2-Nitrophenol		68.8	ug/L	6.32	21.1
91-94-1	3,3'-Dichlorobenzidine		80.2	ug/L	6.32	21.1
101-55-3	4-Bromophenylphenylether		78.8	ug/L	6.32	21.1
59-50-7	Parachlorometa cresol		73.2	ug/L	6.32	21.1
	4-Chloro-3-methylphenol					
106-47-8	4-Chloroaniline		101	ug/L	6.95	21.1
7005-72-3	4-Chlorophenylphenylether		79.1	ug/L	6.32	21.1
100-02-7	4-Nitrophenol		53.8	ug/L	6.32	21.1
83-32-9	Acenaphthene		68.9	ug/L	0.632	2.11
208-96-8	Acenaphthylene		72.8	ug/L	0.632	2.11
62-53-3	Aniline		99.9	ug/L	8.84	21.1
120-12-7	Anthracene		76.6	ug/L	0.632	2.11
1912-24-9	Atrazine		82.8	ug/L	6.32	21.1
92-87-5	Benzidine	E	195	ug/L	8.21	21.1
56-55-3	Benzo(a)anthracene		74.4	ug/L	0.632	2.11
50-32-8	Benzo(a)pyrene		71.3	ug/L	0.632	2.11
205-99-2	Benzo(b)fluoranthene		72.7	ug/L	0.632	2.11
191-24-2	Benzo(ghi)perylene		74.2	ug/L	0.632	2.11

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**1202893396**	**Date Received:**	**06/12/2013 08:50**		
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPU-13-34779MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 16:39**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**475 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1815.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
207-08-9	Benzo(k)fluoranthene		69.5	ug/L	0.632	2.11
65-85-0	Benzoic acid		80.6	ug/L	12.6	42.1
100-51-6	Benzyl alcohol		75.1	ug/L	6.32	21.1
85-68-7	Butylbenzylphthalate		67.1	ug/L	6.32	21.1
218-01-9	Chrysene		59.3	ug/L	0.632	2.11
84-74-2	Di-n-butylphthalate		77.9	ug/L	6.32	21.1
117-84-0	Di-n-octylphthalate		68.6	ug/L	6.32	21.1
53-70-3	Dibenzo(a,h)anthracene		81.3	ug/L	0.632	2.11
132-64-9	Dibenzofuran		77.3	ug/L	6.32	21.1
84-66-2	Diethylphthalate		81.3	ug/L	6.32	21.1
131-11-3	Dimethylphthalate		80.9	ug/L	6.32	21.1
88-85-7	Dinoseb	U	21.1	ug/L	6.32	21.1
122-39-4	Diphenylamine		81.6	ug/L	6.32	21.1
206-44-0	Fluoranthene		77.9	ug/L	0.632	2.11
86-73-7	Fluorene		77.4	ug/L	0.632	2.11
118-74-1	Hexachlorobenzene		80.8	ug/L	6.32	21.1
87-68-3	Hexachlorobutadiene		56.7	ug/L	6.32	21.1
77-47-4	Hexachlorocyclopentadiene		38.1	ug/L	6.32	21.1
67-72-1	Hexachloroethane		54.8	ug/L	6.32	21.1
193-39-5	Indeno(1,2,3-cd)pyrene		77.9	ug/L	0.632	2.11
78-59-1	Isophorone		76.8	ug/L	7.37	21.1
62-75-9	N-Methyl-N-nitrosomethylamine		57.6	ug/L	6.32	21.1
924-16-3	N-Nitrosodi-n-butylamine	U	21.1	ug/L	6.32	21.1
55-18-5	N-Nitrosodiethylamine	U	21.1	ug/L	6.32	21.1
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		83.6	ug/L	6.32	21.1
930-55-2	N-Nitrosopyrrolidine		76.4	ug/L	6.32	21.1
91-20-3	Naphthalene		64.0	ug/L	0.632	2.11
98-95-3	Nitrobenzene		76.7	ug/L	6.32	21.1
608-93-5	Pentachlorobenzene	U	21.1	ug/L	6.32	21.1
87-86-5	Pentachlorophenol		57.8	ug/L	6.32	21.1
85-01-8	Phenanthrene		75.5	ug/L	0.632	2.11
108-95-2	Phenol		50.8	ug/L	6.32	21.1
129-00-0	Pyrene		65.3	ug/L	0.632	2.11
110-86-1	Pyridine		87.8	ug/L	6.32	21.1
111-91-1	bis(2-Chloroethoxy)methane		75.9	ug/L	6.32	21.1
111-44-4	bis(2-Chloroethyl) ether		74.6	ug/L	6.32	21.1
39638-32-9	bis(2-Chloroisopropyl)ether		67.8	ug/L	6.32	21.1
117-81-7	bis(2-Ethylhexyl)phthalate		70.1	ug/L	6.32	21.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-940**	**Date Collected:**	**06/10/2013 12:18**	**Matrix:**	**W**
Lab Sample ID:	**1202893396**	**Date Received:**	**06/12/2013 08:50**		
Client Sample:	**QC for batch 1308464**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPU-13-34779MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1308465**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**06/18/2013 16:39**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/17/2013 17:55**	**Aliquot:**	**475 mL**	**Final Volume:**	**1 mL**
Data File:	**s061813.B\s8F1815.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
65794-96-9	m,p-Cresols		81.2	ug/L	7.79	21.1
99-09-2	3-Nitroaniline *m-Nitroaniline*		125	ug/L	6.32	21.1
95-48-7	o-Cresol		71.1	ug/L	6.32	21.1
88-74-4	2-Nitroaniline *o-Nitroaniline*		97.1	ug/L	6.32	21.1
100-01-6	4-Nitroaniline *p-Nitroaniline*		167	ug/L	6.32	21.1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	176	211	ug/L	83.7	(26%-129%)
2-Fluorobiphenyl	61.5	105	ug/L	58.4	(32%-102%)
2-Fluorophenol	112	211	ug/L	53.0	(10%-78%)
Nitrobenzene-d5	70.6	105	ug/L	67.1	(36%-125%)
Phenol-d5	94.0	211	ug/L	44.6	(10%-104%)
p-Terphenyl-d14	66.9	105	ug/L	63.5	(34%-135%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
19-JUN-13	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1308465	See Below		

Potentially affected work order(s)(SDG): 327396(2013-940)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. The LCS(1202893394) recovered p-Nitroaniline at 154%. The limits are 38%-133%.	1. Since p-Nitroaniline was not detected in the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.
2. The MS(1202893395) and MSD(1202893396) recovered p-Nitroaniline at 151% and 158%, respectively. The limits are 25%-133%.	2. Since p-Nitroaniline was not detected in the associated parent sample, the biased high recoveries had no adverse impact on the data and the results have been reported.

Originator's Name:

Richard Bomar 19-JUN-13

Data Validator/Group Leader:

Barbara Bailey 20-JUN-13

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC-MS/MS
ARS International (ARSL)
SDG 2013-940

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography-Mass Spectrometry/Mass Spectrometry (LC-MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1306713
Prep Batch Number:	1306712

Sample Analysis

Sample ID	Client ID
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202888871	Interference Check Sample (ICS)
1202888867	Method Blank (MB)
1202888868	Laboratory Control Sample (LCS)
1202888869	327024002(CALA-13-33434) Matrix Spike (MS)
1202888870	327024002(CALA-13-33434) Matrix Spike Duplicate (MSD)

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

Preparation/Analytical Method Verification

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

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

Calibration Information

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

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

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

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

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

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

Quality Control (QC) Information

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

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

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

QC Sample Designation
Client sample 327024002 (CALA-13-33434) from SDG 2013-916 was chosen for matrix spike and matrix spike duplicate analysis.

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

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

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

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

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

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

Sample Dilutions
Sample 327396004 (CAPU-13-34787) was diluted to bring the over range concentration within the calibration range.

Sample Re-extraction/Re-analysis
Due to poor injection of the MSD, both matrix spikes were re-analyzed the following day. The re-analysis data are reported.

Miscellaneous Information

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

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

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

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

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

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

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

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-940 GEL Work Order: 327396

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

J Value is estimated

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

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 26 JUN 2013 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAPU-13-34785

Date Received: 12-JUN-13

GEL Job No (SDG): 2013-940

GEL Sample ID: 327396001

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.520	ug/L		1	13-JUN-13 21:16	per0613031a
	Perchlorate Isotope Ratio			3.12			1	13-JUN-13 21:16	per0613031a
14797-73-0	Perchlorate-101	.05	.2	0.517	ug/L		1	13-JUN-13 21:16	per0613031a
	Perchlorate-O(18)			0.504	ug/L		1	13-JUN-13 21:16	per0613031a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAPU-13-34787

Date Received: 12-JUN-13

GEL Job No (SDG): 2013-940

GEL Sample ID: 327396004

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	4.81	ug/L		10	14-JUN-13 18:36	per0614016a
	Perchlorate Isotope Ratio			2.98			10	14-JUN-13 18:36	per0614016a
14797-73-0	Perchlorate-101	.5	2	5.09	ug/L		10	14-JUN-13 18:36	per0614016a
	Perchlorate-O(18)			5.06	ug/L		10	14-JUN-13 18:36	per0614016a

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

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

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-940

Extract Batch Code: 1306712

Date Filtered: 13-JUN-13

Matrix: WATER

Sample ID: 1202888868

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.222	ug/L	111		85 - 115
Perchlorate Isotope Ratio		3.17				-
Perchlorate-101	0.200	.217	ug/L	108		85 - 115
Perchlorate-O(18)		.568	ug/L			-

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

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-940

Extract Batch Code: 1306712

Date Extracted: 13-JUN-13

GEL MS/PS ID: 1202888869

Client ID: CALA-13-33434

GEL MSD/PSD ID: 1202888870

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.491	ug/L	0.667	87.9	.67	89.7	.518	30	75 - 125
Perchlorate Isotope Ratio	0	3.12		3.08		3.08		.0359		-
Perchlorate-101	0.200	0.487	ug/L	0.683	97.6	.686	99.4	.553	30	75 - 125
Perchlorate-O(18)	0	0.504	ug/L	0.498		.508		1.93		-

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

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 13-JUN-13

GEL Job No (SDG): 2013-940

GEL Sample ID: 1202888867

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.200	ug/L	U	1	13-JUN-13 18:44	per0613012a
	Perchlorate Isotope Ratio						1	13-JUN-13 18:44	per0613012a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	13-JUN-13 18:44	per0613012a
	Perchlorate-O(18)			0.506	ug/L		1	13-JUN-13 18:44	per0613012a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 13-JUN-13

GEL Job No (SDG): 2013-940

GEL Sample ID: 1202888868

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.222	ug/L		1	13-JUN-13 18:52	per0613013a
	Perchlorate Isotope Ratio			3.17			1	13-JUN-13 18:52	per0613013a
14797-73-0	Perchlorate-101	.05	.2	0.217	ug/L		1	13-JUN-13 18:52	per0613013a
	Perchlorate-O(18)			0.568	ug/L		1	13-JUN-13 18:52	per0613013a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-940

GEL Sample ID: 1202888871

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.201	ug/L		1	13-JUN-13 19:00	per0613014a
	Perchlorate Isotope Ratio			3.3			1	13-JUN-13 19:00	per0613014a
14797-73-0	Perchlorate-101	.05	.2	0.189	ug/L	J	1	13-JUN-13 19:00	per0613014a
	Perchlorate-O(18)			0.523	ug/L		1	13-JUN-13 19:00	per0613014a

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

*Concentration =

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CALA-13-33434MS

Date Received: 06-JUN-13

GEL Job No (SDG): 2013-940

GEL Sample ID: 1202888869

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.667	ug/L		1	14-JUN-13 18:04	per0614012a
	Perchlorate Isotope Ratio			3.08			1	14-JUN-13 18:04	per0614012a
14797-73-0	Perchlorate-101	.05	.2	0.683	ug/L		1	14-JUN-13 18:04	per0614012a
	Perchlorate-O(18)			0.498	ug/L		1	14-JUN-13 18:04	per0614012a

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

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1306712

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CALA-13-33434MSD

Date Received: 06-JUN-13

GEL Job No (SDG): 2013-940

GEL Sample ID: 1202888870

Date Filtered: 13-JUN-13

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.670	ug/L		1	14-JUN-13 18:12	per0614013a
	Perchlorate Isotope Ratio			3.08			1	14-JUN-13 18:12	per0614013a
14797-73-0	Perchlorate-101	.05	.2	0.686	ug/L		1	14-JUN-13 18:12	per0614013a
	Perchlorate-O(18)			0.508	ug/L		1	14-JUN-13 18:12	per0614013a

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

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

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-940

Sample Analysis

Sample ID	Client ID
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202891767	Method Blank (MB) **ICP**
1202891768	Laboratory Control Sample (LCS)
1202891771	327527002(CALA-13-33435L) Serial Dilution (SD)
1202891769	327527002(CALA-13-33435D) Sample Duplicate (DUP)
1202891770	327527002(CALA-13-33435S) Matrix Spike (MS)
1202891762	Method Blank (MB) **ICP-MS**
1202891763	Laboratory Control Sample (LCS)
1202891766	327527002(CALA-13-33435L) Serial Dilution (SD)
1202891764	327527002(CALA-13-33435D) Sample Duplicate (DUP)
1202891765	327527002(CALA-13-33435S) Matrix Spike (MS)
1202890533	Method Blank (MB) **CVAA**
1202890534	Laboratory Control Sample (LCS)
1202890537	327396001(CAPU-13-34785L) Serial Dilution (SD)
1202890535	327396001(CAPU-13-34785D) Sample Duplicate (DUP)
1202890536	327396001(CAPU-13-34785S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1307832, 1307830, 1307337 and 1312560
Prep Batch :	1307831, 1307829 and 1307336
Standard Operating Procedures:	GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 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-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple 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 standards met the advisory control limits with the exception of zinc, which recovered outside of the advisory control limits of 70%-130%.

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 327527002 (CALA-13-33435)-ICP and ICP-MS and 327396001 (CAPU-13-34785)-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:** 07/08/13

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: 2013-940 GEL Work Order: 327396

The Qualifiers in this report are defined as follows:

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

J Value is estimated

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

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

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

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

Reviewed by _____ 07/08/13

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−940 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 327396001 **BASIS:** As Received **DATE COLLECTED** 10−JUN−13

CLIENT ID: CAPU−13−34785 **LEVEL:** Low **DATE RECEIVED** 12−JUN−13

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	NOR1	06/13/13 10:32	061313W1−5	1307337

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−940 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 327396001 **BASIS:** As Received **DATE COLLECTED** 10−JUN−13

CLIENT ID: CAPU−13−34785 **LEVEL:** Low **DATE RECEIVED** 12−JUN−13

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−36−0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−38−2	Arsenic	2.06	ug/L	J	1.7	5	5	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−39−3	Barium	46.2	ug/L		1	5	5	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−42−8	Boron	21.7	ug/L	J	15	50	50	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−43−9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−70−2	Calcium	19200	ug/L		50	200	200	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−47−3	Chromium	2.46	ug/L	J	2	10	10	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7439−89−6	Iron	100	ug/L	U	30	100	100	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7439−95−4	Magnesium	4560	ug/L		110	300	300	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7439−98−7	Molybdenum	1.17	ug/L		0.165	0.5	0.5	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−02−0	Nickel	0.804	ug/L	J	0.5	2	2	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−09−7	Potassium	2340	ug/L		50	150	150	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7631−86−9	Silica	65300	ug/L		53	213	213	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−23−5	Sodium	12900	ug/L		100	300	300	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−24−6	Strontium	107	ug/L		1	5	5	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	06/25/13 03:14	130624−3	1307830
7440−31−5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	06/20/13 12:31	062013C−2	1307832
7440−61−1	Uranium	1	ug/L		0.067	0.2	0.2	1	MS	BAJ	06/25/13 14:44	130625−4	1307830
7440−62−2	Vanadium	12.9	ug/L		1	5	5	1	P	HSC	06/20/13 11:10	062013C−1	1307832
7440−66−6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	06/20/13 11:10	062013C−1	1307832

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−940 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 327396001 **BASIS:** As Received **DATE COLLECTED** 10−JUN−13

CLIENT ID: CAPU−13−34785 **LEVEL:** Low **DATE RECEIVED** 12−JUN−13

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	66.8	mg/L		0.453	1.24	1.24	1		JJ2	07/04/13 16:37		1312560

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1307337	1307336	EPA 245.1/245.2 Prep	20	mL	20	mL	06/12/13	AXS5
1307830	1307829	SW846 3005A	50	mL	50	mL	06/19/13	AXG2
1307832	1307831	SW846 3005A	50	mL	50	mL	06/19/13	AXG2

***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: 2013−940 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 327396004 **BASIS:** As Received **DATE COLLECTED** 10−JUN−13

CLIENT ID: CAPU−13−34787 **LEVEL:** Low **DATE RECEIVED** 12−JUN−13

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	NOR1	06/13/13 10:42	061313W1−5	1307337

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−940 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 327396004 **BASIS:** As Received **DATE COLLECTED** 10−JUN−13

CLIENT ID: CAPU−13−34787 **LEVEL:** Low **DATE RECEIVED** 12−JUN−13

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−36−0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−38−2	Arsenic	1.75	ug/L	J	1.7	5	5	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−39−3	Barium	36.9	ug/L		1	5	5	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−42−8	Boron	25.3	ug/L	J	15	50	50	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−43−9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−70−2	Calcium	19000	ug/L		50	200	200	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−47−3	Chromium	3.16	ug/L	J	2	10	10	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7439−89−6	Iron	100	ug/L	U	30	100	100	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7439−95−4	Magnesium	3620	ug/L		110	300	300	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7439−98−7	Molybdenum	1.83	ug/L		0.165	0.5	0.5	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−02−0	Nickel	1.02	ug/L	J	0.5	2	2	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−09−7	Potassium	2600	ug/L		50	150	150	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7631−86−9	Silica	73800	ug/L		53	213	213	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−23−5	Sodium	12200	ug/L		100	300	300	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−24−6	Strontium	86.2	ug/L		1	5	5	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	06/25/13 03:21	130624−3	1307830
7440−31−5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	06/20/13 12:34	062013C−2	1307832
7440−61−1	Uranium	0.835	ug/L		0.067	0.2	0.2	1	MS	BAJ	06/25/13 14:46	130625−4	1307830
7440−62−2	Vanadium	7.78	ug/L		1	5	5	1	P	HSC	06/20/13 11:13	062013C−1	1307832
7440−66−6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	06/20/13 11:13	062013C−1	1307832

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−940 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 327396004 **BASIS:** As Received **DATE COLLECTED** 10−JUN−13

CLIENT ID: CAPU−13−34787 **LEVEL:** Low **DATE RECEIVED** 12−JUN−13

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	62.4	mg/L		0.453	1.24	1.24	1		JJ2	07/04/13 16:37		1312560

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1307337	1307336	EPA 245.1/245.2 Prep	20	mL	20	mL	06/12/13	AXS5
1307830	1307829	SW846 3005A	50	mL	50	mL	06/19/13	AXG2
1307832	1307831	SW846 3005A	50	mL	50	mL	06/19/13	AXG2

***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. 2013−940
Contract: ESHL00210
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202890533								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2
1202891762								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202891767								
	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	63.5	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10

***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. 2013−940 **Client ID** CAPU−13−34785S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 327396001 **Spike ID:** 1202890536

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.05		0.067	U	2	103		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−940 **Client ID** CALA−13−33435S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 327527002 **Spike ID:** 1202891765

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	51		1	U	50	102		MS
Arsenic	ug/L	75−125	52.4		1.7	U	50	102		MS
Cadmium	ug/L	75−125	51		0.11	U	50	102		MS
Chromium	ug/L	75−125	50.7		2	J	50	97.4		MS
Lead	ug/L	75−125	49.9		0.5	U	50	99		MS
Molybdenum	ug/L	75−125	50.4		2.3		50	96.2		MS
Nickel	ug/L	75−125	50.3		1.31	J	50	98		MS
Selenium	ug/L	75−125	52.5		1.68	J	50	102		MS
Silver	ug/L	75−125	51.3		0.2	U	50	103		MS
Thallium	ug/L	75−125	47.4		0.45	U	50	94.8		MS
Uranium	ug/L	75−125	53.7		2.06		50	103		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−940 **Client ID** CALA−13−33435S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 327527002 **Spike ID:** 1202891770

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4980		68	U	5000	99.1		P
Barium	ug/L	75−125	543		47.8		500	99.1		P
Beryllium	ug/L	75−125	499		1	U	500	99.7		P
Boron	ug/L	75−125	524		26.7	J	500	99.5		P
Calcium	ug/L		33600		27900		5000	114	N/A	P
Cobalt	ug/L	75−125	481		1	U	500	96.3		P
Copper	ug/L	75−125	519		3	U	500	104		P
Magnesium	ug/L	75−125	13000		7760		5000	106		P
Manganese	ug/L	75−125	495		2	U	500	99.1		P
Potassium	ug/L	75−125	9710		4660		5000	101		P
Silica	ug/L	75−125	54500		42400		10700	113		P
Sodium	ug/L	75−125	21700		16000		5000	114		P
Strontium	ug/L	75−125	641		135		500	101		P
Tin	ug/L	75−125	503		2.5	U	500	101		P
Vanadium	ug/L	75−125	520		6.63		500	103		P
Zinc	ug/L	75−125	493		3.3	U	500	98.5		P
Iron	ug/L	75−125	5040		30	U	5000	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−940 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPU−13−34785D

Matrix: LIQUID **Level:** Low

Sample ID: 327396001 **Duplicate ID:** 1202890535 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−940 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CALA−13−33435D

Matrix: LIQUID **Level:** Low

Sample ID: 327527002 **Duplicate ID:** 1202891764 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.98	J	200		MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L		2	J	2	U	200		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	2.3		2.24		2.6		MS
Nickel	ug/L	+/−2	1.31	J	1.2	J	8.69		MS
Selenium	ug/L	+/−5	1.68	J	1.77	J	4.81		MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−20%	2.06		2.03		1.17		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−940 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CALA−13−33435D

Matrix: LIQUID **Level:** Low

Sample ID: 327527002 **Duplicate ID:** 1202891769 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	47.8		49		2.41		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L	+/−50	26.7	J	29.1	J	8.78		P
Calcium	ug/L	+/−20%	27900		29100		4.09		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%	7760		8130		4.67		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	4660		4830		3.43		P
Silica	ug/L	+/−20%	42400		44000		3.72		P
Sodium	ug/L	+/−20%	16000		16600		3.82		P
Strontium	ug/L	+/−20%	135		141		4.32		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	6.63		7.64		14.2		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−940

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202890534								
	Mercury	ug/L	2	2.11		105	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−940

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202891763								
	Antimony	ug/L	50	50.8		102	80−120	MS
	Arsenic	ug/L	50	49.8		99.7	80−120	MS
	Cadmium	ug/L	50	51.7		103	80−120	MS
	Chromium	ug/L	50	50.1		100	80−120	MS
	Lead	ug/L	50	49.7		99.4	80−120	MS
	Molybdenum	ug/L	50	49.9		99.9	80−120	MS
	Nickel	ug/L	50	51.8		104	80−120	MS
	Selenium	ug/L	50	51.8		104	80−120	MS
	Silver	ug/L	50	54.1		108	80−120	MS
	Thallium	ug/L	50	47.3		94.5	80−120	MS
	Uranium	ug/L	50	51.1		102	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−940

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202891768								
	Vanadium	ug/L	500	524		105	80−120	P
	Zinc	ug/L	500	514		103	80−120	P
	Aluminum	ug/L	5000	5210		104	80−120	P
	Barium	ug/L	500	514		103	80−120	P
	Beryllium	ug/L	500	510		102	80−120	P
	Boron	ug/L	500	501		100	80−120	P
	Calcium	ug/L	5000	5200		104	80−120	P
	Cobalt	ug/L	500	503		101	80−120	P
	Copper	ug/L	500	528		106	80−120	P
	Iron	ug/L	5000	5210		104	80−120	P
	Magnesium	ug/L	5000	5310		106	80−120	P
	Manganese	ug/L	500	522		104	80−120	P
	Potassium	ug/L	5000	5310		106	80−120	P
	Silica	ug/L	10700	10800		101	80−120	P
	Sodium	ug/L	5000	5290		106	80−120	P
	Strontium	ug/L	500	521		104	80−120	P
	Tin	ug/L	500	514		103	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−940 **Client ID** CAPU−13−34785L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 327396001 **Serial Dilution ID:** 1202890537

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

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−940 **Client ID** CALA−13−33435L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 327527002 **Serial Dilution ID:** 1202891766

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	2	U	10	U				MS
Lead	.5	U	2.5	U				MS
Molybdenum	2.3		2.89		25.4			MS
Nickel	1.31	J	2.5	U	100			MS
Selenium	1.68	J	7.5	U	100			MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	2.06		2.37		15.2			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−940 **Client ID** CALA−13−33435L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 327527002 **Serial Dilution ID:** 1202891771

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	47.8		48.9		2.35			P
Beryllium	1	U	5	U				P
Boron	26.7	J	75	U	100			P
Calcium	27900		27000		3.49		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	7760		7840		.994		10	P
Manganese	2	U	10	U				P
Potassium	4660		4650		.372		10	P
Silica	42400		41200		2.89		10	P
Sodium	16000		16500		3.24		10	P
Strontium	135		138		1.97		10	P
Tin	2.5	U	12.5	U				P
Vanadium	6.63		8.43	J	27.1			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-940

Method/Analysis Information

Product:	**Carbon, Total Organic**		
Analytical Batch:	1307044	**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
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202889800	Method Blank (MB)
1202889801	326938001(CAPU-13-34774) Sample Duplicate (DUP)
1202889803	326938001(CAPU-13-34774) Post Spike (PS)
1202889805	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

Preparation/Analytical Method Verification

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

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 326938001 (CAPU-13-34774).

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:	1308081	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202892397	327279002(CALA-13-33429) Sample Duplicate (DUP)
1202892399	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: 327279002 (CALA-13-33429).

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: 1308135 **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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202892559	Laboratory Control Sample (LCS)
1202892561	327623002(CAPU-13-34783) 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-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: 327623002 (CAPU-13-34783).

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: 327396001 (CAPU-13-34785) and 327396004 (CAPU-13-34787).

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: 1194703 327396001 (CAPU-13-34785) and 327396004 (CAPU-13-34787).

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:	1307985	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202892153	Method Blank (MB)
1202892154	327396001(CAPU-13-34785) Sample Duplicate (DUP)
1202892155	327396001(CAPU-13-34785) Post Spike (PS)
1202892156	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 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) Designation
The following sample was selected for QC analysis: 327396001 (CAPU-13-34785).

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

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202892154 (CAPU-13-34785) and 327396001 (CAPU-13-34785).

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 following samples were re-analyzed due to CCV failure: 1202892153 (MB), 1202892154 (CAPU-13-34785), 1202892155 (CAPU-13-34785), 1202892156 (LCS), 327396001 (CAPU-13-34785) and 327396004 (CAPU-13-34787).

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: 1202892154 (CAPU-13-34785), 1202892155 (CAPU-13-34785), 327396001 (CAPU-13-34785) and 327396004 (CAPU-13-34787).

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:	1307626	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1307625	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202891254	Method Blank (MB)
1202891256	327396001(CAPU-13-34785) Sample Duplicate (DUP)
1202891258	327396001(CAPU-13-34785) Matrix Spike (MS)
1202891259	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

Preparation/Analytical Method Verification

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

Calibration Information

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

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

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

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 327396001 (CAPU-13-34785).

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

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202891256 (CAPU-13-34785).

Technical Information

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

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

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

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

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

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

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1308288	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1308287	**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
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202892933	Method Blank (MB)
1202892934	327172001(CAPU-13-34773) Sample Duplicate (DUP)
1202892935	327172003(CAPU-13-34778) Sample Duplicate (DUP)
1202892936	327172001(CAPU-13-34773) Matrix Spike (MS)
1202892937	327172003(CAPU-13-34778) Matrix Spike (MS)
1202892938	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

Preparation/Analytical Method Verification

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

Calibration Information

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

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

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following samples were selected for QC analysis: 327172001 (CAPU-13-34773) and 327172003 (CAPU-13-34778).

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

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202892934 (CAPU-13-34773). The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202892935 (CAPU-13-34778).

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: 1197089 1202892934 (CAPU-13-34773).

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:	1308114	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202892480	Method Blank (MB)
1202892482	327172002(CAPU-13-34781) Sample Duplicate (DUP)
1202892485	327172002(CAPU-13-34781) Post Spike (PS)
1202892487	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

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

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

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

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

Calibration Verification Information (CCV)

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 327172002 (CAPU-13-34781).

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

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

Technical Information

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

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

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

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202892482 (CAPU-13-34781), 1202892485 (CAPU-13-34781) and 327396004 (CAPU-13-34787).

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

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

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

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1307629	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1307628	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202891260	Method Blank (MB)
1202891261	327172002(CAPU-13-34781) Sample Duplicate (DUP)
1202891263	327172002(CAPU-13-34781) Matrix Spike (MS)
1202891265	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

Preparation/Analytical Method Verification

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

Calibration Information

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

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

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

Y Intercept Rule

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 327172002 (CAPU-13-34781).

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

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

Technical Information

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

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

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

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

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 1202891265 (LCS).

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

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

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1307663	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202891341	Method Blank (MB)
1202891344	Laboratory Control Sample (LCS)
1202891540	327396004(CAPU-13-34787) 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# 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 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: 327396004 (CAPU-13-34787).

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202891540 (CAPU-13-34787) and 327396004 (CAPU-13-34787).

Technical Information

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

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

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

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

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

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1194854 1202891540 (CAPU-13-34787).

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:	1307658 and 1310049	**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
327396001	CAPU-13-34785
327396004	CAPU-13-34787
1202891327	Method Blank (MB)
1202891328	Laboratory Control Sample (LCS)
1202891329	327279002(CALA-13-33429) Sample Duplicate (DUP)
1202891330	327279002(CALA-13-33429) Matrix Spike (MS)
1202897463	Laboratory Control Sample (LCS)
1202897466	327396004(CAPU-13-34787) Sample Duplicate (DUP)
1202897467	327396004(CAPU-13-34787) Matrix Spike (MS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

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

Calibration Information

The Titration analysis was performed on a Manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

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) Designation
The following samples were selected for QC analysis: 327279002 (CALA-13-33429)- Batch 1307658 and 327396004 (CAPU-13-34787)- Batch 1310049.

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

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

Technical Information

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

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

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

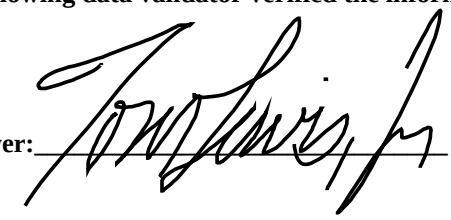
Certification Statement

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

Review Validation:

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

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

Reviewer:  **Date:** 09July13

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: 2013-940 GEL Work Order: 327396

The Qualifiers in this report are defined as follows:

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

** Analyte is a Tracer compound

** Analyte is a surrogate compound

E Concentration of the target analyte exceeds the instrument calibration range

H Analytical holding time was exceeded

J Value is estimated

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

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

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

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

Reviewed by 

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

Certificate of Analysis

Report Date: July 9, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-940

Client Sample ID: CAPU-13-34785
Sample ID: 327396001
Matrix: W
Collect Date: 10-JUN-13 13:50
Receive Date: 12-JUN-13
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		185	1.00	1.00	umhos/cm	1	LXA1	06/14/13	1527	1308081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 14.7C	H	8.27	0.010	0.100	SU	1	LXA1	06/14/13	1218	1308135	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0689	0.067	0.200	mg/L	1	MAR1	06/26/13	1208	1307985	3
Chloride		3.02	0.067	0.200	mg/L	1					
Fluoride		0.247	0.033	0.100	mg/L	1					
Sulfate		3.99	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0185	0.017	0.050	mg/L	1	KLP1	06/18/13	1435	1307626	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.540	0.017	0.050	mg/L	1	KLP1	06/24/13	1129	1308114	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0784	0.017	0.050	mg/L	1	KLP1	06/17/13	1556	1307629	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		140	3.40	14.3	mg/L		LYG1	06/13/13	0846	1307663	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		82.2	0.725	1.00	mg/L		LXA1	06/13/13	1737	1307658	8
Carbonate alkalinity (CaCO3)		2.10	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	06/18/13	1400	1307625
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	06/14/13	1600	1307628

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

Certificate of Analysis

Report Date: July 9, 2013

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Mr. Keith Greene	Client SDG:	2013-940
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPU-13-34785	Project:	ESHL00210
Sample ID:	327396001	Client ID:	ARSL001

The following Analytical Methods were performed:

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

Notes:

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

Certificate of Analysis

Report Date: July 9, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-940

Client Sample ID: CAPU-13-34777
Sample ID: 327396002
Matrix: W
Collect Date: 10-JUN-13 13:50
Receive Date: 12-JUN-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.692	0.330	1.00	mg/L	1	TSM	06/15/13	0022	1307044	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	06/25/13	1117	1308288	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	06/24/13	1600	1308287

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Notes:

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

Certificate of Analysis

Report Date: July 9, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-940

Client Sample ID: CAPU-13-34779
Sample ID: 327396003
Matrix: W
Collect Date: 10-JUN-13 12:18
Receive Date: 12-JUN-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.680	0.330	1.00	mg/L	1	TSM	06/15/13	0056	1307044	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	06/25/13	1118	1308288	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	06/24/13	1600	1308287

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Notes:

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

Certificate of Analysis

Report Date: July 9, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-940

Client Sample ID: CAPU-13-34787
Sample ID: 327396004
Matrix: W
Collect Date: 10-JUN-13 12:18
Receive Date: 12-JUN-13
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		190	1.00	1.00	umhos/cm	1	LXA1	06/14/13	1528	1308081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 16.2C	H	8.13	0.010	0.100	SU	1	LXA1	06/14/13	1220	1308135	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	06/26/13	1338	1307985	3
Chloride		6.33	0.067	0.200	mg/L	1					
Fluoride		0.706	0.033	0.100	mg/L	1					
Sulfate		5.12	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	06/18/13	1442	1307626	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.58	0.085	0.250	mg/L	5	KLP1	06/24/13	1214	1308114	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.107	0.017	0.050	mg/L	1	KLP1	06/17/13	1556	1307629	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		150	3.40	14.3	mg/L		LYG1	06/13/13	0846	1307663	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		70.2	0.725	1.00	mg/L		LXA1	06/24/13	1429	1310049	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	06/18/13	1400	1307625
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	06/14/13	1600	1307628

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

Certificate of Analysis

Report Date: July 9, 2013

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Mr. Keith Greene	Client SDG:	2013-940
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPU-13-34787	Project:	ESHL00210
Sample ID:	327396004	Client ID:	ARSL001

The following Analytical Methods were performed:

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

Notes:

Quality Control Summary

QC Summary

Report Date: July 9, 2013

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

Workorder: **327396**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis												
Batch 1307044												
QC1202889801 326938001 DUP												
Total Organic Carbon Average			1.64		1.57	mg/L	4.37 ^		(+/-1.00)	TSM	06/14/13	16:06
QC1202889805 LCS												
Total Organic Carbon Average	10.0				10.1	mg/L		101	(85%-115%)		06/14/13	13:56
QC1202889800 MB												
Total Organic Carbon Average				U	ND	mg/L					06/14/13	13:47
QC1202889803 326938001 PS												
Total Organic Carbon Average	10.0		1.64		11.6	mg/L		99.4	(65%-120%)		06/14/13	16:26
Conductivity Analysis												
Batch 1308081												
QC1202892397 327279002 DUP												
Conductivity			381		384	umhos/cm	0.784		(0%-10%)	LXA1	06/14/13	15:25
QC1202892399 LCS												
Conductivity	1410				1440	umhos/cm		102	(95%-105%)		06/14/13	15:24
Electrode Analysis												
Batch 1308135												
QC1202892561 327623002 DUP												
pH		H	7.63	H	7.61	SU	0.262		(0%-10%)	LXA1	06/14/13	15:19
QC1202892559 LCS												
pH	7.00				7.00	SU		100	(99%-101%)		06/14/13	11:50
Ion Chromatography												
Batch 1307985												
QC1202892154 327396001 DUP												
Bromide		J	0.0689	U	ND	mg/L	N/A ^			MAR1	06/26/13	12:38
Chloride			3.02		3.03	mg/L	0.522		(0%-20%)			
Fluoride			0.247		0.259	mg/L	4.79 ^		(+/-0.100)			
Sulfate			3.99		3.91	mg/L	1.90		(0%-20%)			
QC1202892156 LCS												
Bromide	1.25				1.27	mg/L		102	(90%-110%)		06/26/13	11:38

QC Summary

Workorder: 327396

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1307985											
Chloride	5.00				4.79	mg/L		95.8	(90%-110%)	MAR1	06/26/13 11:38
Fluoride	2.50				2.57	mg/L		103	(90%-110%)		
Sulfate	10.0				10.1	mg/L		101	(90%-110%)		
QC1202892153 MB											
Bromide				U	ND	mg/L					06/26/13 11:08
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202892155 327396001 PS											
Bromide	1.25	J	0.0689		1.30	mg/L		98.6	(90%-110%)		06/26/13 13:08
Chloride	5.00		3.02		8.11	mg/L		102	(90%-110%)		
Fluoride	2.50		0.247		2.76	mg/L		101	(90%-110%)		
Sulfate	10.0		3.99		14.1	mg/L		101	(90%-110%)		
Nutrient Analysis											
Batch 1307626											
QC1202891256 327396001 DUP											
Nitrogen, Ammonia		J	0.0185	J	0.0431	mg/L	79.9 ^		(+/-0.050)	KLP1	06/18/13 14:36
QC1202891259 LCS											
Nitrogen, Ammonia	1.00				1.04	mg/L		104	(90%-110%)		06/18/13 14:18
QC1202891254 MB											
Nitrogen, Ammonia				U	ND	mg/L					06/18/13 14:17
QC1202891258 327396001 MS											
Nitrogen, Ammonia	1.00	J	0.0185		1.03	mg/L		101	(90%-110%)		06/18/13 14:41
Batch 1307629											
QC1202891261 327172002 DUP											
Phosphorus, Total as P			2.26		2.07	mg/L	8.78		(0%-31%)	KLP1	06/17/13 15:42
QC1202891265 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		06/17/13 15:51

QC Summary

Workorder: 327396

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1307629											
QC1202891260 MB											
Phosphorus, Total as P				J	0.0384	mg/L				KLP1	06/17/13 15:39
QC1202891263 327172002 MS											
Phosphorus, Total as P	1.00		2.26		3.25	mg/L		99	(62%-139%)		06/17/13 15:42
Batch 1308114											
QC1202892482 327172002 DUP											
Nitrogen, Nitrate/Nitrite			2.54		2.47	mg/L	2.79		(0%-20%)	KLP1	06/24/13 11:14
QC1202892487 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.03	mg/L		103	(90%-110%)		06/24/13 11:04
QC1202892480 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					06/24/13 11:03
QC1202892485 327172002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.508		1.52	mg/L		101	(90%-110%)		06/24/13 11:20
Batch 1308288											
QC1202892934 327172001 DUP											
Nitrogen, Total Kjeldahl			0.476		0.282	mg/L	51.2*^		(+/-0.100)	KLP1	06/25/13 11:04
QC1202892935 327172003 DUP											
Nitrogen, Total Kjeldahl		U	ND	J	0.0413	mg/L	N/A				06/25/13 11:07
QC1202892938 LCS											
Nitrogen, Total Kjeldahl	1.00				1.07	mg/L		107	(90%-110%)		06/25/13 11:02
QC1202892933 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					06/25/13 11:02
QC1202892936 327172001 MS											
Nitrogen, Total Kjeldahl	1.00		0.476		1.38	mg/L		90.4	(90%-110%)		06/25/13 11:05
QC1202892937 327172003 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		1.00	mg/L		100	(90%-110%)		06/25/13 11:07
Solids Analysis											
Batch 1307663											
QC1202891540 327396004 DUP											
Total Dissolved Solids			150		169	mg/L	11.7*		(0%-10%)	LYG1	06/13/13 08:46
QC1202891344 LCS											
Total Dissolved Solids	300				296	mg/L		98.6	(95%-105%)		06/13/13 08:46

QC Summary

Workorder: 327396

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Solids Analysis												
Batch 1307663												
QC1202891341 MB												
Total Dissolved Solids				U	ND	mg/L				LYG1	06/13/13	08:46
Titration Analysis												
Batch 1307658												
QC1202891329 327279002 DUP												
Alkalinity, Total as CaCO3			130		133	mg/L	1.59		(0%-20%)	LXA1	06/13/13	15:01
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A					
QC1202891328 LCS												
Alkalinity, Total as CaCO3	50.0				52.4	mg/L		105	(90%-110%)		06/13/13	11:01
QC1202891327 MB												
Alkalinity, Total as CaCO3				U	ND	mg/L					06/13/13	11:00
Carbonate alkalinity (CaCO3)				U	ND	mg/L						
QC1202891330 327279002 MS												
Alkalinity, Total as CaCO3	50.0		130		182	mg/L		103	(80%-120%)		06/13/13	15:11
Batch 1310049												
QC1202897466 327396004 DUP												
Alkalinity, Total as CaCO3			70.2		70.7	mg/L	0.743		(0%-20%)	LXA1	06/24/13	14:37
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A					
QC1202897463 LCS												
Alkalinity, Total as CaCO3	50.0				52.4	mg/L		105	(90%-110%)		06/24/13	11:06
QC1202897467 327396004 MS												
Alkalinity, Total as CaCO3	50.0		70.2		121	mg/L		102	(80%-120%)		06/24/13	14:50

Notes:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated

QC Summary

Workorder: **327396**

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

N/A RPD or %Recovery limits do not apply.

N1 See case narrative

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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

R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.

R Sample results are rejected

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

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

d 5-day BOD--The 2:1 depletion requirement was not met for this sample

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:**
14-JUN-13	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1/SW-846 9040C	Liquid	BETT, CARE, ESHL, OLAB,
Batch ID:	**Sample Numbers:**		
1308135	See Below		

Potentially affected work order(s)(SDG): 327172(2013-926),327279(2013-934),327280(2013-935),327396(2013-940),327421,327444(EUI-9293),327456,327469,327527(2013-947),327622(2013-951),327623(2013-952)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 327172 002,004 327279 002 327280 002,004 327396 001,004 327421 004,007,010 327444 001 327456 002,006,010 327469 001,002,003 327527 002 327622 002 327623 002	1. Sample received out of holding.
2.Container scanning event for custody missed: 327444001,327469001, 327469002, 327469003, 327622002, 327623002	2. Samples were not scanned to the analytical batch prior to analysis; however, they were in the analyst's custody at the time of analysis.

Originator's Name:

Lindsey Jensen 14-JUN-13

Data Validator/Group Leader:

Jamie Johnson 26-JUN-13

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
17-JUN-13	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
BALANCE	EPA 160.1	Liquid	BETT, ESHL, OLAB, UCOR,
Batch ID:	**Sample Numbers:**		
1307663	See Below		

Potentially affected work order(s)(SDG): 327395(2013-939),327396(2013-940),327456,327459,327469,327518

Application Issues:

Failed RPD for DUP

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for DUP: QC 1202891540DUP 2. Consecutive weight check criteria not met. 327456 002,006 327469 001	1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. 2. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples.

Originator's Name:

Lisa Gregory 17-JUN-13

Data Validator/Group Leader:

Elzbieta Szulc 18-JUN-13

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
25-JUN-13	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2, EPA 351.2 SC	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1308288	See below.		

Potentially affected work order(s)(SDG): 327172(2013-926),327279(2013-934),327280(2013-935),327394,327396(2013-940),327527(2013-947),327622(2013-951),327623(2013-952),327635,327704(2013-956),327705(2013-957),327706(2013-958),327707(2013-959)

Application Issues:

Failed RPD for DUP

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for DUP: QC 1202892934DUP	1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 25-JUN-13

Data Validator/Group Leader:

Julia Hamilton 25-JUN-13

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-940
Work Order 327396

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1307462

Sample ID	Client ID
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202890847	Method Blank (MB)
1202890848	327396002(CAPU-13-34777) Sample Duplicate (DUP)
1202890849	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# 24.

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 1202890847 (MB) and 1202890849 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 327396002 (CAPU-13-34777). The QC was from ARSL work order 327396.

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:	1307464

Sample ID	Client ID
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202890855	Method Blank (MB)
1202890856	327396002(CAPU-13-34777) Sample Duplicate (DUP)
1202890857	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# 24.

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 1202890855 (MB) and 1202890857 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 327396002 (CAPU-13-34777). The QC was from ARSL work order 327396.

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER).

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 1202890855 (MB), 1202890856 (CAPU-13-34777) and 327396002 (CAPU-13-34777) were recounted due to high MDCs. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1196391 was generated due to RDL less than MDA. 1. The duplicate, 1202890856, did not meet the Pu-239/240 detection limit. 1. When a blank population is performed the MDC may be greater than the RDL due to the high standard deviation. The duplicate does meet the tracer yield requirement and has greater than 400 tracer counts. Reporting results.

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:	1307467

Sample ID	Client ID
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202890863	Method Blank (MB)
1202890864	327396002(CAPU-13-34777) Sample Duplicate (DUP)
1202890865	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# 24.

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 1202890863 (MB) and 1202890865 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 327396002 (CAPU-13-34777). The QC was from ARSL work order 327396.

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

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

Technical Information:

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

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

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 U-238 blank result is greater than the decision level but less than the MDC.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1307967

Sample ID	Client ID
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202892110	Method Blank (MB)
1202892111	327527001(CALA-13-33427) Sample Duplicate (DUP)
1202892112	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# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in July 2012, August 2012 and May 2013.

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: 327527001 (CALA-13-33427). The QC was from ARSL work order 327527.

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:	1307879

Sample ID	Client ID
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202891916	Method Blank (MB)
1202891917	327527001(CALA-13-33427) Sample Duplicate (DUP)
1202891918	327527001(CALA-13-33427) Matrix Spike (MS)
1202891919	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 March 2013.

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 1202891916 (MB) and 1202891919 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 327527001 (CALA-13-33427). The QC was from ARSL work order 327527.

QC Information

All of the QC samples met the required acceptance limits.

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

Technical Information:

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

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

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

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, 1202891918 (CALA-13-33427), 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:	1308529

Sample ID	Client ID
327396002	CAPU-13-34777
327396003	CAPU-13-34779
1202893584	Method Blank (MB)
1202893585	327623001(CAPU-13-34775) Sample Duplicate (DUP)
1202893586	327623001(CAPU-13-34775) Matrix Spike (MS)
1202893587	327623001(CAPU-13-34775) Matrix Spike Duplicate (MSD)
1202893588	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# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 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 1202893584 (MB) and 1202893588 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 327623001 (CAPU-13-34775). The QC was from ARSL work order 327623.

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

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

Technical Information:

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

Sample Re-prep/Re-analysis
Sample 1202893586 (CAPU-13-34775) was recounted due to high recovery. The recount is reported. Sample 1202893585 (CAPU-13-34775) was recounted due to high relative percent difference/relative error ratio. The recount is 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, 1202893586 (CAPU-13-34775) and 1202893587 (CAPU-13-34775), 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: 2013-940 GEL Work Order: 327396

The Qualifiers in this report are defined as follows:

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

** Analyte is a Tracer compound

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: 01 JUL 2013 **Title: Analyst I**

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
21-JUN-13	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ALPHA SPECTROMETER	DOE EML HASL-300, Pu-11-RC Modified	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1307464	See Below		

Potentially affected work order(s)(SDG): 327396(2013-940),327527(2013-947),327622(2013-951),327623(2013-952)

Application Issues:

RDL less than MDA

Specification and Requirements Exception Description:	**DER Disposition:**
1. The duplicate, 1202890856, did not meet the Pu-239/240 detection limit.	1. When a blank population is performed the MDC may be greater than the RDL due to the high standard deviation. The duplicate does meet the tracer yield requirement and has greater than 400 tracer counts. Reporting results.

Originator's Name:

Melanie Aycock 21-JUN-13

Data Validator/Group Leader:

Jessica Davis 27-JUN-13

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: July 1, 2013

Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPU-13-34777
Sample ID: 327396002
Matrix: W
Collect Date: 10-JUN-13
Receive Date: 12-JUN-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
Alphaspec Am241 Liquid "As Received"														
Americium-241	U	0.0117	+/-0.00826	0.0443	0.0182	+/-0.00827	0.050	pCi/L		NXP2	06/19/13	1013	1307462	1
Alphaspec Pu, Liquid "As Received"														
Plutonium-238	U	-0.00222	+/-0.00384	0.0208	0.00737	+/-0.00384	0.050	pCi/L		NXP2	06/20/13	1338	1307464	2
Plutonium-239/240	U	0.00222	+/-0.00665	0.0437	0.0188	+/-0.00666	0.050	pCi/L						
Alphaspec U, Liquid "As Received"														
Uranium-234		0.570	+/-0.0419	0.0655	0.0287	+/-0.0561	1.00	pCi/L		NXP2	06/19/13	1013	1307467	3
Uranium-235/236	U	0.0221	+/-0.0104	0.051	0.0205	+/-0.0105	1.00	pCi/L						
Uranium-238		0.301	+/-0.0303	0.0418	0.0169	+/-0.0361	0.500	pCi/L						
Rad Gamma Spec Analysis														
Gammaspec "As Received"														
Cesium-137	U	1.42	+/-0.830	3.12	1.41	+/-0.832	8.00	pCi/L		MXR1	06/21/13	1102	1307967	4
Cobalt-60	U	-0.406	+/-1.07	3.88	1.72	+/-1.07	8.00	pCi/L						
Neptunium-237	U	-2.45	+/-2.40	6.83	3.23	+/-2.47	10.0	pCi/L						
Potassium-40	U	20.5	+/-19.2	40.7	18.1	+/-19.2	10.0	pCi/L						
Sodium-22	U	0.0334	+/-1.07	3.93	1.75	+/-1.07	10.0	pCi/L						
Rad Gas Flow Proportional Counting														
GFPC, Sr90, liquid "As Received"														
Strontium-90	U	0.406	+/-0.142	0.459	0.223	+/-0.146	0.500	pCi/L		JXR1	06/26/13	1933	1307879	5
WSP-GrossA/B "As Received"														
Beta		3.35	+/-0.489	1.50	0.729	+/-0.569	3.00	pCi/L		DYT1	06/24/13	1953	1308529	6
Alpha	U	1.60	+/-0.931	2.99	1.10	+/-0.942	3.00	pCi/L		DYT1	06/26/13	1619	1308529	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"	1307462	75.8	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1307464	73.4	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1307467	72.3	(50%-105%)

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

Certificate of Analysis

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

Report Date: July 1, 2013

Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPU-13-34777
Sample ID: 327396002

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**							**Batch ID**	**Recovery%**	**Acceptable Limits**				
Strontium Carrier	GFPC, Sr90, liquid "As Received"							1307879	87.7	(50%-105%)				

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

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

Certificate of Analysis

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

Report Date: July 1, 2013

Contact: Mr. Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAPU-13-34779
Sample ID: 327396003
Matrix: W
Collect Date: 10-JUN-13
Receive Date: 12-JUN-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
Alphaspec Am241 Liquid "As Received"														
Americium-241	U	0.00629	+/-0.00629	0.0478	0.0196	+/-0.0063	0.050	pCi/L		NXP2	06/19/13	1013	1307462	1
Alphaspec Pu, Liquid "As Received"														
Plutonium-238	U	0.00	+/-0.00383	0.0253	0.00899	+/-0.00383	0.050	pCi/L		NXP2	06/19/13	1013	1307464	2
Plutonium-239/240	U	0.00811	+/-0.00605	0.0533	0.023	+/-0.00606	0.050	pCi/L						
Alphaspec U, Liquid "As Received"														
Uranium-234		0.618	+/-0.0422	0.0617	0.027	+/-0.0583	1.00	pCi/L		NXP2	06/19/13	1013	1307467	3
Uranium-235/236	U	0.0139	+/-0.0085	0.048	0.0193	+/-0.00855	1.00	pCi/L						
Uranium-238		0.219	+/-0.0251	0.0394	0.0159	+/-0.0289	0.500	pCi/L						
Rad Gamma Spec Analysis														
Gammaspec "As Received"														
Cesium-137	U	-0.225	+/-1.28	4.78	2.12	+/-1.28	8.00	pCi/L		MXR1	06/21/13	1103	1307967	4
Cobalt-60	U	-0.601	+/-1.30	4.74	1.96	+/-1.31	8.00	pCi/L						
Neptunium-237	U	3.54	+/-2.79	10.5	4.89	+/-2.91	10.0	pCi/L						
Potassium-40	U	8.62	+/-16.1	68.3	30.1	+/-16.3	10.0	pCi/L						
Sodium-22	U	-0.438	+/-1.34	4.93	2.07	+/-1.34	10.0	pCi/L						
Rad Gas Flow Proportional Counting														
GFPC, Sr90, liquid "As Received"														
Strontium-90	U	0.276	+/-0.146	0.478	0.230	+/-0.147	0.500	pCi/L		JXR1	06/26/13	1932	1307879	5
WSP-GrossA/B "As Received"														
Beta		2.20	+/-0.599	1.92	0.940	+/-0.627	3.00	pCi/L		DYT1	06/24/13	1848	1308529	6
Alpha	U	1.56	+/-0.903	2.82	0.941	+/-0.912	3.00	pCi/L		DYT1	06/26/13	1559	1308529	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"	1307462	71.0	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1307464	80.4	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1307467	74.8	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1307879	81.9	(50%-105%)

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

Certificate of Analysis

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

Report Date: July 1, 2013

Contact: Mr. Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPU-13-34779
Sample ID: 327396003

Project: ESHL00210
Client ID: ARSL001

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

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: July 1, 2013

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

Contact: **Mr. Keith Greene**

Workorder: **327396**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1307462										
QC1202890848 327396002 DUP										
Americium-241	U	0.0117	U	0.00265	pCi/L	0.351		(0-1)	NXP2	06/19/1310:13
	Uncert:	+/-0.00826		+/-0.00458						
	TPU:	+/-0.00827		+/-0.00458						
**Americium-243 Tracer	2.62	1.98		2.19	pCi/L		83.5	(50%-105%)		
	Uncert:	+/-0.0869		+/-0.0829						
	TPU:	+/-0.143		+/-0.139						
QC1202890849 LCS										
Americium-241	1.41			1.27	pCi/L		89.9	(80%-120%)	NXP2	06/19/1310:13
	Uncert:			+/-0.0532						
	TPU:			+/-0.0762						
**Americium-243 Tracer	2.09			1.70	pCi/L		81.3	(50%-105%)		
	Uncert:			+/-0.0676						
	TPU:			+/-0.113						
QC1202890847 MB										
Americium-241			U	0.00	pCi/L				NXP2	06/19/1310:13
	Uncert:			+/-0.00594						
	TPU:			+/-0.00594						
**Americium-243 Tracer	2.09			1.75	pCi/L		83.5	(50%-105%)		
	Uncert:			+/-0.0659						
	TPU:			+/-0.110						
Batch 1307464										
QC1202890856 327396002 DUP										
Plutonium-238	U	-0.00222	U	-0.00932	pCi/L	0.329		(0-1)	NXP2	06/20/1313:38
	Uncert:	+/-0.00384		+/-0.00695						
	TPU:	+/-0.00384		+/-0.00695						
Plutonium-239/240	U	0.00222	U	0.0528	pCi/L	1.16		(0-1)		
	Uncert:	+/-0.00665		+/-0.0149						
	TPU:	+/-0.00666		+/-0.0151						
**Plutonium-242 Tracer	2.44	1.79		1.22	pCi/L		50	(50%-105%)		
	Uncert:	+/-0.0737		+/-0.0877						
	TPU:	+/-0.125		+/-0.142						
QC1202890857 LCS										
Plutonium-238			U	0.00818	pCi/L			(80%-120%)	NXP2	06/19/1310:13
	Uncert:			+/-0.00721						
	TPU:			+/-0.00722						
Plutonium-239/240	1.97			1.93	pCi/L		98.1	(80%-120%)		
	Uncert:			+/-0.0727						
	TPU:			+/-0.116						
**Plutonium-242 Tracer	1.95			1.25	pCi/L		64.2	(50%-105%)		
	Uncert:			+/-0.0731						
	TPU:			+/-0.117						
QC1202890855 MB										

QC Summary

Workorder: **327396**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1307464										
Plutonium-238			U	-0.00818	pCi/L				NXP2	06/20/1313:38
	Uncert:			+/-0.00646						
	TPU:			+/-0.00646						
Plutonium-239/240			U	0.00613	pCi/L					
	Uncert:			+/-0.00541						
	TPU:			+/-0.00541						
**Plutonium-242 Tracer	1.95			1.21	pCi/L		62.1	(50%-105%)		
	Uncert:			+/-0.0634						
	TPU:			+/-0.105						
Batch 1307467										
QC1202890864 327396002 DUP										
Uranium-234		0.570		0.560	pCi/L	0.041		(0-1)	NXP2	06/19/1310:13
	Uncert:	+/-0.0419		+/-0.0425						
	TPU:	+/-0.0561		+/-0.0563						
Uranium-235/236	U	0.0221	U	0.015	pCi/L	0.169		(0-1)		
	Uncert:	+/-0.0104		+/-0.0106						
	TPU:	+/-0.0105		+/-0.0106						
Uranium-238		0.301		0.360	pCi/L	0.385		(0-1)		
	Uncert:	+/-0.0303		+/-0.0333						
	TPU:	+/-0.0361		+/-0.0409						
**Uranium-232 Tracer	2.69	1.95		1.94	pCi/L		72.1	(50%-105%)		
	Uncert:	+/-0.0898		+/-0.0909						
	TPU:	+/-0.198		+/-0.199						
QC1202890865 LCS										
Uranium-234				2.74	pCi/L				NXP2	06/19/1310:13
	Uncert:			+/-0.0787						
	TPU:			+/-0.195						
Uranium-235/236				0.136	pCi/L					
	Uncert:			+/-0.0198						
	TPU:			+/-0.0217						
Uranium-238	2.70			2.87	pCi/L		106	(80%-120%)		
	Uncert:			+/-0.0804						
	TPU:			+/-0.203						
**Uranium-232 Tracer	2.15			1.66	pCi/L		76.8	(50%-105%)		
	Uncert:			+/-0.0701						
	TPU:			+/-0.157						
QC1202890863 MB										
Uranium-234			U	0.00	pCi/L				NXP2	06/19/1310:13
	Uncert:			+/-0.00567						
	TPU:			+/-0.00567						
Uranium-235/236			U	0.00	pCi/L					
	Uncert:			+/-0.00496						
	TPU:			+/-0.00496						
Uranium-238			U	0.016	pCi/L					
	Uncert:			+/-0.00802						
	TPU:			+/-0.00809						
**Uranium-232 Tracer	2.15			1.83	pCi/L		84.7	(50%-105%)		
	Uncert:			+/-0.0659						

QC Summary

Workorder: **327396**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1307467										
	TPU:			+/-0.153						
Rad Gamma Spec										
Batch 1307967										
QC1202892111 327527001 DUP										
Cesium-137	U	0.920	U	1.42	pCi/L	0.113		(0-1)	MXR1	06/23/1311:40
	Uncert:	+/-0.955		+/-1.25						
	TPU:	+/-0.979		+/-1.25						
Cobalt-60	U	-0.381	U	2.96	pCi/L	0.711		(0-1)		
	Uncert:	+/-0.885		+/-1.29						
	TPU:	+/-0.889		+/-1.46						
Neptunium-237	U	-2.36	U	1.66	pCi/L	0.452		(0-1)		
	Uncert:	+/-1.97		+/-2.37						
	TPU:	+/-2.04		+/-2.40						
Potassium-40	U	3.19	U	-11.3	pCi/L	0.212		(0-1)		
	Uncert:	+/-14.0		+/-19.9						
	TPU:	+/-14.0		+/-20.0						
Sodium-22	U	-1.58	U	2.06	pCi/L	0.867		(0-1)		
	Uncert:	+/-1.06		+/-0.977						
	TPU:	+/-1.12		+/-0.981						
QC1202892112 LCS										
Americium-241	2780			2720	pCi/L		97.7	(80%-120%)	MXR1	06/24/1312:10
	Uncert:			+/-104						
	TPU:			+/-189						
Cesium-137	6010			6020	pCi/L		100	(80%-120%)		
	Uncert:			+/-52.9						
	TPU:			+/-260						
Cobalt-60	5230			5310	pCi/L		102	(80%-120%)		
	Uncert:			+/-56.4						
	TPU:			+/-223						
Neptunium-237			U	21.2	pCi/L					
	Uncert:			+/-23.5						
	TPU:			+/-24.0						
Potassium-40			U	53.8	pCi/L					
	Uncert:			+/-40.2						
	TPU:			+/-42.2						
Sodium-22			U	-2.46	pCi/L					
	Uncert:			+/-6.50						
	TPU:			+/-6.52						
QC1202892110 MB										
Cesium-137			U	-1.84	pCi/L				MXR1	06/21/1312:18
	Uncert:			+/-1.54						
	TPU:			+/-1.60						
Cobalt-60			U	1.29	pCi/L					
	Uncert:			+/-1.02						
	TPU:			+/-1.06						
Neptunium-237			U	-0.00884	pCi/L					
	Uncert:			+/-1.91						
	TPU:			+/-1.91						

QC Summary

Workorder: **327396**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1307967										
Potassium-40			U	-2.39	pCi/L					
Uncert:				+/-18.6						
TPU:				+/-18.6						
Sodium-22			U	-0.712	pCi/L					
Uncert:				+/-1.11						
TPU:				+/-1.12						
Rad Gas Flow										
Batch 1307879										
QC1202891917 327527001 DUP										
Strontium-90	U	0.00638	U	0.328	pCi/L	0.570		(0-1)	JXR1	06/26/1319:32
Uncert:		+/-0.132		+/-0.147						
TPU:		+/-0.132		+/-0.150						
**Strontium Carrier	8.55	8.10		8.00	mg		93.6	(50%-105%)		
QC1202891919 LCS										
Strontium-90	24.2			25.9	pCi/L		107	(80%-120%)	JXR1	06/26/1320:24
Uncert:				+/-0.697						
TPU:				+/-2.17						
**Strontium Carrier	8.55			7.60	mg		88.9	(50%-105%)		
QC1202891916 MB										
Strontium-90			U	-0.115	pCi/L				JXR1	06/26/1319:33
Uncert:				+/-0.0644						
TPU:				+/-0.0644						
**Strontium Carrier	8.55			6.40	mg		74.9	(50%-105%)		
QC1202891918 327527001 MS										
Strontium-90	243 U	0.00638		267	pCi/L		110	(75%-125%)	JXR1	06/26/1320:24
Uncert:		+/-0.132		+/-6.87						
TPU:		+/-0.132		+/-22.2						
**Strontium Carrier	8.55	8.10		8.10	mg		94.7	(50%-105%)		
Batch 1308529										
QC1202893585 327623001 DUP										
Alpha	U	-0.0322	U	0.431	pCi/L	0.231		(0-1)	DYT1	06/26/1317:21
Uncert:		+/-0.464		+/-0.539						
TPU:		+/-0.464		+/-0.540						
Beta	U	0.373	U	1.05	pCi/L	0.206		(0-1)		06/25/1317:45
Uncert:		+/-0.753		+/-0.878						
TPU:		+/-0.754		+/-0.882						
QC1202893588 LCS										
Alpha	12.3			13.7	pCi/L		111	(80%-120%)	DYT1	06/26/1317:41
Uncert:				+/-0.643						
TPU:				+/-1.43						
Beta	48.5			54.5	pCi/L		112	(80%-120%)		06/24/1316:29
Uncert:				+/-0.952						
TPU:				+/-4.60						
QC1202893584 MB										
Alpha			U	-0.0731	pCi/L				DYT1	06/26/1317:21
Uncert:				+/-0.0167						
TPU:				+/-0.017						
Beta			U	-0.104	pCi/L					06/24/1318:48

QC Summary

Workorder: **327396**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1308529										
	Uncert:			+/-0.0438						
	TPU:			+/-0.0438						
QC1202893586 327623001 MS										
Alpha	82.3 U	-0.0322		77.5	pCi/L		94.2	(75%-125%)	DYT1	06/27/1312:54
	Uncert:	+/-0.464		+/-4.18						
	TPU:	+/-0.464		+/-8.01						
Beta	1940 U	0.373		2190	pCi/L		113	(75%-125%)		06/24/1316:29
	Uncert:	+/-0.753		+/-38.7						
	TPU:	+/-0.754		+/-186						
QC1202893587 327623001 MSD										
Alpha	82.3 U	-0.0322		90.0	pCi/L	0.370	109	(0-1)	DYT1	06/26/1317:21
	Uncert:	+/-0.464		+/-4.76						
	TPU:	+/-0.464		+/-8.88						
Beta	1940 U	0.373		2290	pCi/L	0.129	118	(0-1)		06/24/1316:29
	Uncert:	+/-0.753		+/-39.3						
	TPU:	+/-0.754		+/-194						

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	Value is estimated
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	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
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	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

QC Summary

Workorder: **327396**

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

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.