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

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-724

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Client Contact:

Lab Agreement # : 126310011

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: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAPA-13-29664	Apr 12 2013	10:30	W	2	3	3			1	2			1	1
CAPA-13-29675	Apr 12 2013	10:30	W				1	1			1	1		
CAPA-13-29654	Apr 12 2013	10:30	W	2										

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 4/15/13 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4164

EVENT NAME: Pajarito (General Surveillace Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29654

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		4/12/2013	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1030	**MEDIA:**	UA	"
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	OC
LOCATION ID:	Paj bel S&N Anch E Basin conf	"	**FIELD PREP:**	UF	OK
LOCATION TYPE:		"	**FIELD QC TYPE:**	FTB	"
PORT:			**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL DF 4/12/13	X	NA

SAMPLE COMMENTS: N/A

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature) William Sherman	**Date/Time** 1350 4/12/13	**RECEIVED BY (Printed Name) (Signature)** S. Sherwood Sheri Sherwood	**Date/Time** 4/12/13 1350
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 04/03/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4164 **EVENT NAME:** Pajarito (General Surveillace Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29664 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		4/12/2013	FIELD MATRIX:	WS	O/C
TIME COLLECTED (HH:MM):		1030	MEDIA:	WS	"
PRS ID:		O/C	SAMPLE TECH CODE:		DC
LOCATION ID:	Paj bel S&N Anch E Basin conf	"	FIELD PREP:	UF	O/C
LOCATION TYPE:	WCS	"	FIELD QC TYPE:	REG	"
TOP DEPTH:		"	SAMPLE USAGE:	INV	"
BOTTOM DEPTH:		"	EXCAVATED:		YES / (NO) / NA

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

SAMPLE COMMENTS: N/A

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 9.00 mg/L Oxidation-Reduction Potential N/A MV pH 7.76 SU

Specific Conductance 249 uS/cm Temperature 5.59 deg C Turbidity 6.1 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY (Printed Name) William Shaw	**Date/Time** 13:50 4/12/13	**RECEIVED BY (Printed Name)** S. Sherwood	**Date/Time** 4/12/13 1350
(Signature)		**(Signature)** Sheri Sherwood	
RELINQUISHED BY (Printed Name)	**Date/Time**	**RECEIVED BY (Printed Name)**	**Date/Time**
(Signature)		**(Signature)**	

Report Date 04/03/2013

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4164 **EVENT NAME:** Pajarito (General Surveillace Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29675 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		4/12/2013	FIELD MATRIX:	WS	ok
TIME COLLECTED (HH:MM):		1070	MEDIA:	WS	
PRS ID:		ok	SAMPLE TECH CODE:		pp
LOCATION ID:	Paj bel S&N Anch E Basin conf		FIELD PREP:	F	qc
LOCATION TYPE:	WCS		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-CL04	250 ML POLY	1	ICE	Y	N/A
	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 N/A mg/L Oxidation-Reduction Potential N/A MV pH N/A SU

Specific Conductance N/A uS/cm Temperature N/A deg C Turbidity N/A NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
W. Shaw	1350 4/12/13	S. Sherwood	4/12/13 1350
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 04/03/2013

Data Validation Report

Chain Of Custody No. 2013-724

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
323928	EPA:120.1	1				
323928	EPA:150.1	1				
323928	EPA:160.1	1				
323928	EPA:245.2	1				
323928	EPA:300.0	1				
323928	EPA:310.1	1				
323928	EPA:350.1	1				
323928	EPA:351.2	1				
323928	EPA:353.2	1				
323928	EPA:365.4	1				
323928	EPA:900	1				
323928	EPA:901.1	1				
323928	EPA:905.0	1				
323928	HASL-300:AM-241	1				
323928	HASL-300:ISOPU	1				
323928	HASL-300:ISOU	1				
323928	SM:A2340B	1				
323928	SW-846:6010B	1				
323928	SW-846:6020	1				
323928	SW-846:6850	1				
323928	SW-846:8260B	1		1		
323928	SW-846:8270C	1				
323928	SW-846:8321A_MOD	1				
323928	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
323928	EPA:120.1	1296125	1296125	1							
323928	EPA:150.1	1295777	1295777	1							
323928	EPA:160.1	1295772	1295772	1					1		
323928	EPA:245.2	1295806	1295805	1					1	1	
323928	EPA:300.0	1295339	1295339	1					1		
323928	EPA:310.1	1295322	1295322	1					1	1	
323928	EPA:350.1	1295847	1295846	1					1	1	
323928	EPA:351.2	1292106	1292105	1					1	1	
323928	EPA:353.2	1295802	1295802	1					1		
323928	EPA:365.4	1295857	1295856	1					1	2	
323928	EPA:900	1296612	1296612	1					1	1	1
323928	EPA:901.1	1296138	1296138	1					1		
323928	EPA:905.0	1295288	1295288	1					1	1	
323928	HASL-300:AM-241	1295225	1295225	1					1		
323928	HASL-300:ISOPU	1295226	1295226	1					1		
323928	HASL-300:ISOU	1295227	1295227	1					1		
323928	SM:A2340B	1300880	1300880	1							
323928	SW-846:6010B	1296991	1296990	1					1	1	
323928	SW-846:6020	1296993	1296992	1					1	1	
323928	SW-846:6850	1296373	1296372	1					1	1	1

Data Validation Report for:

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

323928	SW-846:8260B	1297297	1297297	1		1			1		
323928	SW-846:8270C	1295395	1295394	1					1	1	1
323928	SW-846:8321A_MOD	1296101	1296100	1					1	1	1
323928	SW-846:9060	1295844	1295844	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAPA-13-29675	1202861630	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202861632	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-29675	1202860721	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202860723	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29675	1202860708	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202860712	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202860707	MB	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29677	1202860821	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29677	1202860822	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202860820	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202860819	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202859567	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202859564	MB	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	WST08-13-29867	1202859565	DUP	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29675	1202859537	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29675	1202859538	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202859534	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202859533	MB	2	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29677	1202860921	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29677	1202860922	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202860918	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202860917	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29664	323928002	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-13-28822	1202851476	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAWA-13-28822	1202851477	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202851475	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202851474	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29675	1202860811	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202860816	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202860807	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29675	1202860941	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29675	1202860943	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29675	323928003	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202860945	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202860940	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	NP181-13-30518	1202863094	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	NP181-13-30518	1202863095	MS	0	0	1	0
EPA:900	RAD	CAPA-13-29664	323928002	REG	2	0	0	0
EPA:900	RAD	CAPA-13-29670	1202862849	DUP	2	0	0	0
EPA:900	RAD	CAPA-13-29670	1202862850	MS	0	0	2	0
EPA:900	RAD	CAPA-13-29670	1202862851	MSD	0	0	2	0

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		2							
		1							
		1							
		1				1			

EPA:900	RAD	LCS	1202862852	LCS	0	0	2	0
EPA:900	RAD	MB	1202862848	MB	2	0	0	0
EPA:901.1	RAD	CAPA-13-29664	323928002	REG	5	0	0	0
EPA:901.1	RAD	CAPA-13-29669	1202861666	DUP	5	0	0	0
EPA:901.1	RAD	LCS	1202861667	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202861665	MB	5	0	0	0
EPA:905.0	RAD	CAPA-13-29664	1202859439	DUP	1	0	0	0
EPA:905.0	RAD	CAPA-13-29664	1202859440	MS	0	0	1	0
EPA:905.0	RAD	CAPA-13-29664	323928002	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202859441	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202859438	MB	1	0	0	0
HASL-300:AM-241	RAD	CAPA-13-29664	1202859231	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAPA-13-29664	323928002	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202859232	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202859230	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAPA-13-29664	1202859234	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAPA-13-29664	323928002	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202859235	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202859233	MB	2	0	0	0
HASL-300:ISOU	RAD	CAPA-13-29664	1202859237	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAPA-13-29664	323928002	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202859238	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202859236	MB	3	0	0	0
SM:A2340B	INORGANIC	CAPA-13-29675	323928003	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-29675	323928003	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202863773	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202863772	MB	17	0	0	0
SW-846:6010B	INORGANIC	WST36-13-30956	1202863774	DUP	17	0	0	0
SW-846:6010B	INORGANIC	WST36-13-30956	1202863775	MS	0	0	17	0
SW-846:6020	INORGANIC	CAPA-13-29675	323928003	REG	11	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29680	1202863779	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29680	1202863780	MS	0	0	11	0
SW-846:6020	INORGANIC	LCS	1202863778	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202863777	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29675	1202862190	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29675	1202862191	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29675	323928003	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202862189	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202862188	MB	1	0	0	0
SW-846:8260B	VOC	CAPA-13-29654	323928004	FTB	80	3	0	0
SW-846:8260B	VOC	CAPA-13-29664	323928001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202864404	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202864405	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202864401	MB	80	3	0	0
SW-846:8270C	SVOC	CAPA-13-29664	1202859746	MS	0	6	76	0
SW-846:8270C	SVOC	CAPA-13-29664	1202859747	MSD	0	6	76	0
SW-846:8270C	SVOC	CAPA-13-29664	323928001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202859745	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202859744	MB	80	6	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29664	1202861560	MS	0	2	23	0

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SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29664	1202861561	MSD	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29664	323928002	REG	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	LCS	1202861559	LCS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	MB	1202861558	MB	23	2	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29532	1202860913	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29664	323928002	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202860916	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202860911	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

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
WST36-13-30956	1202863775		SW-846:6010B	Boron	1296990	5/8/2013	W	626		125	75
WST36-13-30956	1202863775		SW-846:6010B	Potassium	1296990	5/8/2013	W	2870		125	75
WST36-13-30956	1202863775		SW-846:6010B	Silicon Dioxide	1296990	5/8/2013	W	262		125	75
WST36-13-30956	1202863775		SW-846:6010B	Sodium	1296990	5/8/2013	W	1110		125	75
CAPA-13-29664	1202859746	1202859747	SW-846:8270C	Benzidine	1295394	4/17/2013	W	26	91	125	10

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
1202859745		SW-846:8270C	Hexachlorocyclopentadiene	1295394	4/17/2013	W	37		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Field	Lab	Lab Duplicate	Analytical	Parameter	Sample	Sample	Dup Sample		
								Detected	Detected

Rejection Limit	RPD		RPD Limit	
10				
10				
10				
10				
10		110		30

Upper Reject Limit	RPD	RPD Limit

RPD

Sample ID	SampleID	Sample ID	Method	Name	Matrix	Result	Result	Units	In Sample	In Dup	RPD	
CAPA-13-29664	323928002	1202859237	HASL-300:ISOU	Uranium-234	W	0.13	0.173	pCi/L	Y	Y		28.4
CAPA-13-29664	323928002	1202859237	HASL-300:ISOU	Uranium-238	W	0.102	0.135	pCi/L	Y	Y		27.6

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
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	HASL-300:ISOU	Uranium-234		J	R10	Y
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
Paj bel S&N Anch E Basin conf	2013-724	CAPA-13-29664	REG	INIT	RAD	HASL-300:ISOU	Uranium-238		J	R10	Y

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
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.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

Data Validation Report for:

Chain Of Custody No. 2013-724

Limit

0.0661

0.0371

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
0.00225	pCi/L	0.00225	pCi/L	0.0394	0.00391	W	4/12/2013		1295225	VAL	Y
1.46	pCi/L	1.46	pCi/L	4.87	1.21	W	4/12/2013		1296138	VAL	Y
1.9	pCi/L	1.9	pCi/L	5.01	1.23	W	4/12/2013		1296138	VAL	Y
1.1	pCi/L	1.1	pCi/L	2.47	0.756	W	4/12/2013		1296612	VAL	Y
10	ug/L	10	ug/L			W	4/12/2013		1295395	VAL	Y
-1.7	pCi/L	-1.7	pCi/L	8.31	2.38	W	4/12/2013		1296138	VAL	Y
0	pCi/L	0	pCi/L	0.0366	0.0047	W	4/12/2013		1295226	VAL	Y
0.0047	pCi/L	0.0047	pCi/L	0.0357	0.0047	W	4/12/2013		1295226	VAL	Y
-31.4	pCi/L	-31.4	pCi/L	54.4	15.9	W	4/12/2013		1296138	VAL	Y
-0.741	pCi/L	-0.741	pCi/L	4.18	1.17	W	4/12/2013		1296138	VAL	Y
0.243	pCi/L	0.243	pCi/L	0.492	0.149	W	4/12/2013		1295288	VAL	Y
0.13	pCi/L	0.13	pCi/L	0.0677	0.0212	W	4/12/2013		1295227	VAL	Y
0.00683	pCi/L	0.00683	pCi/L	0.0415	0.00683	W	4/12/2013		1295227	VAL	Y
0.102	pCi/L	0.102	pCi/L	0.038	0.0177	W	4/12/2013		1295227	VAL	Y

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAPA-13-29654	Paj bel S&N Anch E Basin conf	FTB	SW-846:8260B	0	80
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	EPA:351.2	0	1
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	EPA:900	0	2
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	EPA:901.1	0	5
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	EPA:905.0	0	1
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	HASL-300:AM-241	0	1
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	HASL-300:ISOPU	0	2
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	HASL-300:ISOU	0	3
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	SW-846:8260B	0	80
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	SW-846:8270C	0	80
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	SW-846:8321A_MOD	0	23
CAPA-13-29664	Paj bel S&N Anch E Basin conf	REG	SW-846:9060	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:120.1	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:150.1	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:160.1	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:245.2	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:300.0	0	4
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:310.1	0	2
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:350.1	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:353.2	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	EPA:365.4	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	SM:A2340B	0	1
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	SW-846:6010B	0	17
CAPA-13-29675	Paj bel S&N Anch E Basin conf	REG	SW-846:6020	0	11
CAPA-13-29675	Paj bel S&N Anch E Basin conf	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

May 13, 2013

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: 323928
SDG: 2013-724

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 16, 2013, and analyzed for Explosives by LCMSMS, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-724
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 323928
SDG: 2013-724

Table of Contents

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 323928
SDG # : 2013-724

May 13, 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 April 16, 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. The containers for Gross A/B were preserved prior to analysis. 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
323928001	CAPA-13-29664
323928002	CAPA-13-29664
323928003	CAPA-13-29675
323928004	CAPA-13-29654

Case Narrative

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

Data Package

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

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

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 13 May 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

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

Chain of Custody/Analysis Request

323928

COC/Lab Request #: 2013-724

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

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: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAPA-13-29664	Apr 12 2013	10:30	W	2	3	3			1	2			1	1
CAPA-13-29675	Apr 12 2013	10:30	W				1	1			1	1		
CAPA-13-29654	Apr 12 2013	10:30	W	2										

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 4/15/13 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

4-16-13 0905

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ~~LANL~~ ~~ESHL~~ LANL	SDG/AR/COC/Work Order: 2013-724
Received By: JP	Date Received: 4-11-13

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

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	/			Preservation Method: Ice bags (Blue ice) Dry ice None Other (describe) *all temperatures are recorded in Celsius 4.6
2a	Daily check performed and passed on IR temperature gun?	/			Temperature Device Serial #: 41502209 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	/			
4	Sample containers intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			/	Sample ID's, containers affected and observed pH: Gross A/B preserved upon receipt If Preservation added, Lot#: NX0409-75
6	VOA vials free of headspace (defined as < 6mm bubble)?	/			Sample ID's and containers affected:
7	Are Encore containers present?			/	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	/			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	/			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	/			Sample ID's affected:
11	Number of containers received match number indicated on COC?			/	Sample ID's affected: only received 1 container of CAPA-13-291654
12	Are sample containers identifiable as GEL provided?			/	
13	COC form is properly signed in relinquished/received sections?	/			
14	Carrier and tracking number.				Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 5462 9832 9306 -4° 5462 9832 9317 -6°

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HH Date 04/16/13 Page 1 of 1

Subject: Sample Receipt for 041613
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 4/16/2013 12:28 PM
To: "Keith R. Greene" <kgreene@lanl.gov>, LANL@amrad.com, "team.davis" <team.davis@gel.com>, Jennifer Pellegrini <jen01574@gel.com>

Good morning Keith,

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

RN 2013-724
CAPA-13-29654 lab received one container for VOA, chain indicates two.

Thanks

--
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 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15APR13
ACTWGT: 34.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100

6

50DC1/648E/10BC

FedEx Express

J111311060608125

2 of 2
MPS# 0263 5462 9832 9317
Mstr# 5462 9832 9306

TUE - 16 APR 10:30A
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15APR13
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

4

CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100

50DC1/648E/10BC

FedEx Express

J111311060608125

1 of 2
TRK# 0201 5462 9832 9306
MASTER

TUE - 16 APR 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

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

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-724

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1297297

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
323928001	CAPA-13-29664
323928004	CAPA-13-29654
1202864401	Method Blank (MB)
1202864402	323928001(CAPA-13-29664) Post Spike (PS)
1202864403	323928001(CAPA-13-29664) Post Spike Duplicate (PSD)
1202864404	Laboratory Control Sample (LCS)
1202864405	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
All initial calibration requirements have been met for this sample delivery group (SDG).

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

Quality Control (QC) Information

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

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

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

QC Sample Designation
Sample 323928001 (CAPA-13-29664) 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
VOA4.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-724 GEL Work Order: 323928

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

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

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

Review/Validation

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

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

Signature: Erin Haubert **Name: Erin Haubert**

Date: 09 MAY 2013 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928001**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29664**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 18:07**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 18:07**				
Data File:	**042413V4\4H317.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928001**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29664**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 18:07**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 18:07**				
Data File:	**042413V4\4H317.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928001**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29664**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 18:07**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 18:07**				
Data File:	**042413V4\4H317.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.3	50.0	ug/L	103	(78%-124%)
Bromofluorobenzene	51.9	50.0	ug/L	104	(80%-120%)
Toluene-d8	51.6	50.0	ug/L	103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.552	23.4	ug/L	0	J
	unknown siloxane	14.82	13.3	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928004**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29654**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 18:36**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 18:36**				
Data File:	**042413V4\4H318.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928004**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29654**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 18:36**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 18:36**				
Data File:	**042413V4\4H318.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928004**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29654**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 18:36**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 18:36**				
Data File:	**042413V4\4H318.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.2	50.0	ug/L	100	(78%-124%)
Bromofluorobenzene	50.2	50.0	ug/L	100	(80%-120%)
Toluene-d8	51.1	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.474	13.2	ug/L	0	J
	unknown siloxane	14.82	9.05	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-724

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202864404	LCS for batch 1297297	98	99	99
1202864405	LCS for batch 1297297	100	100	105
1202864401	MB for batch 1297297	102	100	104
323928001	CAPA-13-29664	103	103	104
323928004	CAPA-13-29654	100	102	100
1202864402	CAPA-13-29664PS	96	102	95
1202864403	CAPA-13-29664PSD	98	101	98

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

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike

Client ID: CAPA-13-29664PS **Matrix:** W

Lab Sample ID: 1202864402

Instrument: VOA4.I **Analysis Date:** 04/24/2013 21:52 **Dilution:** 1

Analyst: ACJ **Prep Batch ID** 1297297

Purge Vol: 5 mL **Batch ID:** 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	49.0	98	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	54.2	108	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	53.5	107	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	55.2	110	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	49.4	99	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	47.7	95	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	47.9	96	69-121
67-64-1	PS	Acetone	250	0.00	U	134	54	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1350	108	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	55.8	112	67-132
74-88-4	PS	Iodomethane	250	0.00	U	257	103	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	50.8	102	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	299	120	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	52.3	105	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	55.2	110	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	253	101	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	55.9	112	75-124
78-93-3	PS	2-Butanone	250	0.00	U	196	78	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	54.2	108	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	49.2	98	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	53.5	107	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	53.2	106	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike
Client ID: CAPA-13-29664PS **Matrix:** W
Lab Sample ID: 1202864402
Instrument: VOA4.I **Analysis Date:** 04/24/2013 21:52 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1297297
Purge Vol: 5 mL **Batch ID:** 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	52.8	106	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	54.1	108	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5770	115	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	53.1	106	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	53.1	106	72-126
71-43-2	PS	Benzene	50.0	0.00	U	53.1	106	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	52.0	104	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	53.4	107	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	54.1	108	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	52.5	105	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	279	112	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	53.6	107	72-134
108-88-3	PS	Toluene	50.0	0.00	U	53.1	106	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	53.9	108	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	53.6	107	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	246	98	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	54.6	109	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	50.5	101	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	55.8	112	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	54.2	108	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	52.0	104	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	52.9	106	66-125

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike
Client ID: CAPA-13-29664PS **Matrix:** W
Lab Sample ID: 1202864402
Instrument: VOA4.I **Analysis Date:** 04/24/2013 21:52 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1297297
Purge Vol: 5 mL **Batch ID:** 1297297

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	105	105	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	54.2	108	68-126
100-42-5	PS	Styrene	50.0	0.00	U	56.3	113	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	54.2	108	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	51.7	103	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	49.9	100	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	50.0	100	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	50.6	101	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	51.3	103	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	51.9	104	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	52.8	106	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	50.8	102	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	51.6	103	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	52.4	105	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	52.9	106	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	51.2	102	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	50.4	101	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	50.3	101	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	53.2	106	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	49.9	100	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	44.7	89	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	46.9	94	46-145

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-724**
Sample Type: **Post Spike**
Client ID: **CAPA-13-29664PS**
Matrix: **W**
Lab Sample ID: **1202864402**
Instrument: **VOA4.I**
Analysis Date: **04/24/2013 21:52**
Dilution: **1**
Analyst: **ACJ**
Prep Batch ID **1297297**
Purge Vol: **5 mL**
Batch ID: **1297297**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	44.6	89	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	54.7	109	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	44.4	89	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	51.7	103	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike Duplicate
Client ID: CAPA-13-29664PSD **Matrix:** W
Lab Sample ID: 1202864403
Instrument: VOA4.I **Analysis Date:** 04/24/2013 22:20 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1297297
Purge Vol: 5 mL **Batch ID:** 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	44.8	90	36-123	9	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	49.7	99	47-134	9	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	48.3	97	49-129	10	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	51.1	102	56-127	8	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	46.7	93	67-122	6	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	44.1	88	60-123	8	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	45.9	92	69-121	4	0-20
67-64-1	PSD	Acetone	250	0.00	U	130	52	30-143	3	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1270	102	60-133	6	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	51.9	104	67-132	7	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	241	96	69-147	7	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	48.1	96	56-135	6	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	278	111	65-153	7	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	50.1	100	73-126	4	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	52.3	105	69-128	5	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	238	95	50-143	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	52.0	104	75-124	7	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	189	75	30-140	4	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	50.5	101	52-147	7	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	46.8	94	67-143	5	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	50.6	101	75-125	6	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	50.1	100	80-120	6	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike Duplicate
Client ID: CAPA-13-29664PSD **Matrix:** W
Lab Sample ID: 1202864403
Instrument: VOA4.I **Analysis Date:** 04/24/2013 22:20 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1297297
Purge Vol: 5 mL **Batch ID:** 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	49.5	99	69-140	6	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	50.9	102	71-130	6	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5660	113	53-150	2	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	49.4	99	69-142	7	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	50.8	102	72-126	4	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	50.0	100	73-119	6	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	49.3	99	54-147	5	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	50.2	100	78-123	6	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	51.4	103	76-131	5	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	50.1	100	79-120	5	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	268	107	68-136	4	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	50.3	101	72-134	6	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	51.0	102	62-126	4	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	51.3	103	72-133	5	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	51.1	102	74-120	5	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	234	94	31-132	5	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	52.1	104	73-121	5	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	47.6	95	54-139	6	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	53.9	108	74-128	4	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	51.1	102	80-120	6	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	50.0	100	73-119	4	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	50.5	101	66-125	5	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike Duplicate
Client ID: CAPA-13-29664PSD **Matrix:** W
Lab Sample ID: 1202864403
Instrument: VOA4.I **Analysis Date:** 04/24/2013 22:20 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1297297
Purge Vol: 5 mL **Batch ID:** 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	101	101	56-134	4	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	51.1	102	68-126	6	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	52.8	106	57-138	6	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	53.1	106	66-129	2	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	50.5	101	44-146	2	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	49.2	98	68-129	1	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	49.2	98	70-122	2	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	49.0	98	61-131	3	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	49.8	100	66-126	3	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	50.3	101	65-130	3	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	50.7	101	58-134	4	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	49.2	98	63-125	3	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	49.7	99	66-129	4	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	50.4	101	60-131	4	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	50.8	102	62-130	4	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	49.7	99	62-132	3	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	48.5	97	66-121	4	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	48.0	96	65-119	5	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	51.0	102	55-134	4	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	48.4	97	58-137	3	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	43.8	88	49-139	2	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	45.8	92	46-145	2	0-20

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Post Spike Duplicate
Client ID: CAPA-13-29664PSD **Matrix:** W
Lab Sample ID: 1202864403
Instrument: VOA4.I **Analysis Date:** 04/24/2013 22:20 **Dilution:** 1
Analyst: ACJ **Prep Batch ID** 1297297
Purge Vol: 5 mL **Batch ID:** 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	43.1	86	54-134	4	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	52.1	104	79-128	5	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	43.4	87	55-128	2	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	50.0	100	68-121	3	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1297297
Matrix: WATER
Lab Sample ID: 1202864404
Instrument: VOA4.I
Analysis Date: 04/24/2013 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID 1297297
Purge Vol: 5 mL
Batch ID: 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	52.5	105	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	48.5	97	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	48.1	96	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	49.5	99	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	49.3	99	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	51.1	102	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	49.4	99	74-120
67-64-1	LCS	Acetone	250	0.0	275	110	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1300	104	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	55.5	111	76-127
74-88-4	LCS	Iodomethane	250	0.0	249	100	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	49.4	99	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	288	115	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	52.1	104	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	55.2	110	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	277	111	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	53.8	108	79-120
78-93-3	LCS	2-Butanone	250	0.0	309	124	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	53.6	107	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	54.5	109	76-145
67-66-3	LCS	Chloroform	50.0	0.0	53.1	106	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	52.1	104	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1297297
Matrix: WATER
Lab Sample ID: 1202864404
Instrument: VOA4.I
Analysis Date: 04/24/2013 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID 1297297
Purge Vol: 5 mL
Batch ID: 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	55.8	112	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	54.8	110	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5770	115	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	55.0	110	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	51.0	102	75-121
71-43-2	LCS	Benzene	50.0	0.0	52.5	105	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	53.3	107	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	51.4	103	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	53.5	107	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	51.6	103	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	276	110	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	53.7	107	80-127
108-88-3	LCS	Toluene	50.0	0.0	51.8	104	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	52.5	105	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	51.1	102	79-120
591-78-6	LCS	2-Hexanone	250	0.0	331	132	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	50.1	100	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.4	101	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	54.8	110	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.5	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	50.5	101	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	51.9	104	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1297297
Matrix: WATER
Lab Sample ID: 1202864404
Instrument: VOA4.I
Analysis Date: 04/24/2013 12:01
Dilution: 1
Analyst: ACJ
Prep Batch ID 1297297
Purge Vol: 5 mL
Batch ID: 1297297

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	104	104	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	52.2	104	80-120
100-42-5	LCS	Styrene	50.0	0.0	54.0	108	80-121
75-25-2	LCS	Bromoform	50.0	0.0	56.1	112	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	51.9	104	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	51.8	104	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	50.5	101	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	51.6	103	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	51.2	102	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	53.7	107	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	53.3	107	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	52.0	104	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	52.9	106	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	53.5	107	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	53.7	107	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	53.2	106	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	51.9	104	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	51.4	103	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	55.5	111	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	54.1	108	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	50.3	101	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	49.8	100	71-125

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-724**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1297297**
Matrix: **WATER**
Lab Sample ID: **1202864404**
Instrument: **VOA4.I**
Analysis Date: **04/24/2013 12:01**
Dilution: **1**
Analyst: **ACJ**
Prep Batch ID **1297297**
Purge Vol: **5 mL**
Batch ID: **1297297**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	48.2	96	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	51.9	104	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	50.0	100	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	52.3	105	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1297297
Matrix: WATER
Lab Sample ID: 1202864405
Instrument: VOA4.I
Analysis Date: 04/24/2013 13:26
Dilution: 1
Analyst: ACJ
Prep Batch ID 1297297
Purge Vol: 5 mL
Batch ID: 1297297

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	261	104	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	251	100	65-157
107-05-1	LCS	Allyl chloride	250	0.0	255	102	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	247	99	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	41.3	83	45-159
107-12-0	LCS	Propionitrile	250	0.0	248	99	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	243	97	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2650	106	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	241	97	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	248	99	66-132

Method Blank Summary

SDG Number:	**2013-724**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1297297**	**Instrument ID:**	**VOA4.I**	**Data File:**	**042413V4\4H309BA.D**
Lab Sample ID:	**1202864401**	**Prep Date:**	**04/24/2013 14:22**	**Analyzed:**	**04/24/13 14:22**
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 1297297	1202864404	042413V4\4H304LA.D	04/24/13	1201
02	LCS for batch 1297297	1202864405	042413V4\4H307SA.D	04/24/13	1326
03	CAPA-13-29664	323928001	042413V4\4H317.D	04/24/13	1807
04	CAPA-13-29654	323928004	042413V4\4H318.D	04/24/13	1836
05	CAPA-13-29664PS	1202864402	042413V4\4H325.D	04/24/13	2152
06	CAPA-13-29664PSD	1202864403	042413V4\4H326.D	04/24/13	2220

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864401**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 14:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 14:22**				
Data File:	**042413V4\4H309BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864401**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 14:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 14:22**				
Data File:	**042413V4\4H309BA.D**	**Column:**	**DB-624**		

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

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864401**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 14:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 14:22**				
Data File:	**042413V4\4H309BA.D**	**Column:**	**DB-624**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.0	50.0	ug/L	102	(78%-124%)
Bromofluorobenzene	51.9	50.0	ug/L	104	(80%-120%)
Toluene-d8	50.2	50.0	ug/L	100	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	7.58	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202864402**	**Date Received:**	**04/16/2013 09:05**		
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 21:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 21:52**				
Data File:	**042413V4\4H325.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		49.0	ug/L	0.300	1.00
74-87-3	Chloromethane		54.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		53.5	ug/L	0.300	1.00
74-83-9	Bromomethane		55.2	ug/L	0.300	1.00
75-00-3	Chloroethane		49.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		47.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.9	ug/L	0.300	1.00
67-64-1	Acetone		134	ug/L	3.00	10.0
75-05-8	Acetonitrile		1350	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		55.8	ug/L	0.300	1.00
74-88-4	Iodomethane		257	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.8	ug/L	3.00	10.0
75-15-0	Carbon disulfide		299	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		52.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		55.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		253	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		55.9	ug/L	0.300	1.00
78-93-3	2-Butanone		196	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		54.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		49.2	ug/L	0.300	1.00
67-66-3	Chloroform		53.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		52.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.1	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5770	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.1	ug/L	0.300	1.00
71-43-2	Benzene		53.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		53.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		279	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		53.6	ug/L	0.300	1.00
108-88-3	Toluene		53.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		53.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		53.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		246	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202864402**	**Date Received:**	**04/16/2013 09:05**		
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 21:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 21:52**				
Data File:	**042413V4\4H325.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		54.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.5	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.8	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		54.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		52.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		52.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		105	ug/L	0.300	2.00
95-47-6	o-Xylene		54.2	ug/L	0.300	1.00
100-42-5	Styrene		56.3	ug/L	0.300	1.00
75-25-2	Bromoform		54.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		51.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		51.3	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		51.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		52.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		50.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.6	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		52.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		50.4	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		53.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		49.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		44.7	ug/L	0.300	1.00
91-20-3	Naphthalene		46.9	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		44.6	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202864402**	**Date Received:**	**04/16/2013 09:05**		
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 21:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 21:52**				
Data File:	**042413V4\4H325.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		54.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		51.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.0	50.0	ug/L	96.0	(78%-124%)
Bromofluorobenzene	47.7	50.0	ug/L	95.4	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202864403**	**Date Received:**	**04/16/2013 09:05**		
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 22:20**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 22:20**				
Data File:	**042413V4\4H326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		44.8	ug/L	0.300	1.00
74-87-3	Chloromethane		49.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		48.3	ug/L	0.300	1.00
74-83-9	Bromomethane		51.1	ug/L	0.300	1.00
75-00-3	Chloroethane		46.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.9	ug/L	0.300	1.00
67-64-1	Acetone		130	ug/L	3.00	10.0
75-05-8	Acetonitrile		1270	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.9	ug/L	0.300	1.00
74-88-4	Iodomethane		241	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		278	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.3	ug/L	0.300	1.00
108-05-4	Vinyl acetate		238	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		52.0	ug/L	0.300	1.00
78-93-3	2-Butanone		189	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		50.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.8	ug/L	0.300	1.00
67-66-3	Chloroform		50.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		50.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5660	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		49.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		50.8	ug/L	0.300	1.00
71-43-2	Benzene		50.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.4	ug/L	0.300	1.00
74-95-3	Dibromomethane		50.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		268	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		50.3	ug/L	0.300	1.00
108-88-3	Toluene		51.0	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.3	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		234	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202864403**	**Date Received:**	**04/16/2013 09:05**		
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 22:20**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 22:20**				
Data File:	**042413V4\4H326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		52.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		51.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		50.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		50.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		51.1	ug/L	0.300	1.00
100-42-5	Styrene		52.8	ug/L	0.300	1.00
75-25-2	Bromoform		53.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		50.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		49.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		50.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.7	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.7	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		50.4	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		49.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.0	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		51.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		43.8	ug/L	0.300	1.00
91-20-3	Naphthalene		45.8	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		43.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202864403**	**Date Received:**	**04/16/2013 09:05**		
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 22:20**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 22:20**				
Data File:	**042413V4\4H326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		52.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		43.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.9	50.0	ug/L	97.8	(78%-124%)
Bromofluorobenzene	48.9	50.0	ug/L	97.7	(80%-120%)
Toluene-d8	50.7	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864404**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 12:01**				
Data File:	**042413V4\4H304LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		52.5	ug/L	0.300	1.00
74-87-3	Chloromethane		48.5	ug/L	0.300	1.00
75-01-4	Vinyl chloride		48.1	ug/L	0.300	1.00
74-83-9	Bromomethane		49.5	ug/L	0.300	1.00
75-00-3	Chloroethane		49.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		51.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		49.4	ug/L	0.300	1.00
67-64-1	Acetone		275	ug/L	3.00	10.0
75-05-8	Acetonitrile		1300	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		55.5	ug/L	0.300	1.00
74-88-4	Iodomethane		249	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.4	ug/L	3.00	10.0
75-15-0	Carbon disulfide		288	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		52.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		55.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		277	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		53.8	ug/L	0.300	1.00
78-93-3	2-Butanone		309	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		53.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		54.5	ug/L	0.300	1.00
67-66-3	Chloroform		53.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.8	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5770	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		55.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		51.0	ug/L	0.300	1.00
71-43-2	Benzene		52.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		53.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		51.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		276	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		53.7	ug/L	0.300	1.00
108-88-3	Toluene		51.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		331	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864404**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 12:01**				
Data File:	**042413V4\4H304LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		54.8	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		50.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		51.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		104	ug/L	0.300	2.00
95-47-6	o-Xylene		52.2	ug/L	0.300	1.00
100-42-5	Styrene		54.0	ug/L	0.300	1.00
75-25-2	Bromoform		56.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		51.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		51.2	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		53.7	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.3	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		52.0	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		52.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		53.5	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		53.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		51.4	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		55.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		54.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		50.3	ug/L	0.300	1.00
91-20-3	Naphthalene		49.8	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.2	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864404**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 12:01**				
Data File:	**042413V4\4H304LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.9	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		50.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		52.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.2	50.0	ug/L	98.4	(78%-124%)
Bromofluorobenzene	49.7	50.0	ug/L	99.5	(80%-120%)
Toluene-d8	49.7	50.0	ug/L	99.5	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864405**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 13:26**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 13:26**				
Data File:	**042413V4\4H307SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864405**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 13:26**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 13:26**				
Data File:	**042413V4\4H307SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		261	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		251	ug/L	1.50	5.00
107-05-1	Allyl chloride		255	ug/L	1.50	5.00
107-13-1	Acrylonitrile		247	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		41.3	ug/L	0.300	1.00
107-12-0	Propionitrile		248	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		243	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2650	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		241	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202864405**				
Client Sample:	**QC for batch 1297297**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1297297**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1297297**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**04/24/2013 13:26**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**04/24/2013 13:26**				
Data File:	**042413V4\4H307SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		248	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.8	50.0	ug/L	99.5	(78%-124%)
Bromofluorobenzene	52.4	50.0	ug/L	105	(80%-120%)
Toluene-d8	50.1	50.0	ug/L	100	(80%-120%)

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-724

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:	1295395
Prep Batch Number:	1295394

Sample Analysis

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

Sample ID	Client ID
323928001	CAPA-13-29664
1202859744	Method Blank (MB)
1202859745	Laboratory Control Sample (LCS)
1202859746	323928001(CAPA-13-29664) Matrix Spike (MS)
1202859747	323928001(CAPA-13-29664) 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 Method Blank (MB) associated with this SDG displayed target analytes below the reporting limits. The data results have been reported and qualified accordingly.

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

Laboratory Control Sample (LCS) Recovery
The 1202859745 (LCS) recovered Hexachlorocyclopentadiene at 37%. The limits are 38%-79%. The Hexachlorocyclopentadiene failure represents less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

QC Sample Designation
Sample 323928001 (CAPA-13-29664) was selected for analysis as the matrix spike and matrix spike duplicate.

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

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

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202859746(CAPA-13-29664))/MSD(1202859747(CAPA-13-29664)) RPD value for Benzidine was 110%. The limit is 30%. Since Benzidine was individually within the acceptance limits in the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

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

Technical Information:

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

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

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

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

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1179027 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 1202859744 (MB) and 323928001 (CAPA-13-29664) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

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

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

Electronic Package Comment

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

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description

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

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-724 GEL Work Order: 323928

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

B The target analyte was detected in the associated blank.

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: 09 MAY 2013 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928001**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29664**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 18:06**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1719.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928001**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29664**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 18:06**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1719.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**323928001**	**Date Received:**	**04/16/2013 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAPA-13-29664**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 18:06**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1719.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	86.2	100	ug/L	86.2	(23%-130%)
2-Fluorobiphenyl	36.8	50.0	ug/L	73.5	(30%-104%)
2-Fluorophenol	36.1	100	ug/L	36.1	(14%-77%)
Nitrobenzene-d5	37.7	50.0	ug/L	75.4	(34%-125%)
Phenol-d5	20.3	100	ug/L	20.3	(10%-78%)
p-Terphenyl-d14	45.7	50.0	ug/L	91.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.065	39.5	ug/L	0	J

Quality Control Summary

Surrogate Recovery Report

SDG Number: 2013-724

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202859744	MB for batch 1295394	36	20	75	73	80	103
1202859745	LCS for batch 1295394	35	21	76	75	91	91
323928001	CAPA-13-29664	36	20	75	74	86	91
1202859746	CAPA-13-29664MS	55	39	75	73	94	93
1202859747	CAPA-13-29664MSD	52	37	72	71	93	90

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

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 1295394 **Matrix:** WATER

Lab Sample ID: 1202859745

Instrument: MSD4.I **Analysis Date:** 04/17/2013 17:37 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1295394

Inj. Vol: 1 uL **Batch ID:** 1295395

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	21.7	43	29-86
110-86-1	LCS	Pyridine	50.0	0.0	31.9	64	25-96
62-53-3	LCS	Aniline	50.0	0.0	37.7	75	38-105
108-95-2	LCS	Phenol	50.0	0.0	10.7	21	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	36.6	73	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	32.8	66	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	27.8	56	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	27.8	56	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	28.5	57	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	36.2	72	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	32.1	64	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	27.9	56	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	27.2	54	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	39.9	80	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	26.9	54	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	36.4	73	42-118
78-59-1	LCS	Isophorone	50.0	0.0	40.0	80	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	36.4	73	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	36.3	73	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	40.8	82	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	37.7	75	46-106
65-85-0	LCS	Benzoic acid	100	0.0	22.5	23	10-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1295394
Matrix: WATER
Lab Sample ID: 1202859745
Instrument: MSD4.I
Analysis Date: 04/17/2013 17:37
Dilution: 1
Analyst: JMB3
Prep Batch ID 1295394
Inj. Vol: 1 uL
Batch ID: 1295395

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	43.0	86	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	28.8	58	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	39.0	78	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	35.5	71	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	32.9	66	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	34.8	70	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	18.3	37 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	41.7	83	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	41.7	83	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	37.0	74	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	45.0	90	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	46.1	92	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	44.9	90	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	42.0	84	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	43.9	88	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	39.2	78	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	38.3	77	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	22.5	45	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	41.4	83	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	42.6	85	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	46.5	93	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	10.4	21	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Laboratory Control Sample
Client ID: LCS for batch 1295394 **Matrix:** WATER
Lab Sample ID: 1202859745
Instrument: MSD4.I **Analysis Date:** 04/17/2013 17:37 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1295394
Inj. Vol: 1 uL **Batch ID:** 1295395

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	42.6	85	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	42.7	85	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	52.8	106	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	42.4	85	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	44.1	88	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	42.4	85	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	45.1	90	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	42.8	86	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	40.8	82	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	41.9	84	47-111
120-12-7	LCS	Anthracene	50.0	0.0	42.1	84	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	47.4	95	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	44.4	89	45-118
129-00-0	LCS	Pyrene	50.0	0.0	39.5	79	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	44.3	89	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	44.9	90	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	41.3	83	49-110
218-01-9	LCS	Chrysene	50.0	0.0	41.8	84	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	44.2	88	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	40.1	80	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	40.2	80	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	40.5	81	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1295394
Matrix: WATER
Lab Sample ID: 1202859745
Instrument: MSD4.I
Analysis Date: 04/17/2013 17:37
Dilution: 1
Analyst: JMB3
Prep Batch ID 1295394
Inj. Vol: 1 uL
Batch ID: 1295395

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	47.6	95	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	51.5	103	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	48.4	97	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	23.8	48	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	40.2	80	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	33.0	66	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	28.3	57	47-115
92-87-5	LCS	Benzidine	100	0.0	92.8	93	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	42.4	85	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	29.2	58	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike

Client ID: CAPA-13-29664MS **Matrix:** W

Lab Sample ID: 1202859746

Instrument: MSD4.I **Analysis Date:** 04/17/2013 18:36 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1295394

Inj. Vol: 1 uL **Batch ID:** 1295395

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	109	0.00	U	68.3	63	27-85
110-86-1	MS	Pyridine	109	0.00	U	76.6	70	21-93
62-53-3	MS	Aniline	109	0.00	U	89.3	82	28-108
108-95-2	MS	Phenol	109	0.00	U	44.1	41	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	109	0.00	U	81.9	75	27-114
95-57-8	MS	2-Chlorophenol	109	0.00	U	80.0	74	32-103
541-73-1	MS	1,3-Dichlorobenzene	109	0.00	U	62.9	58	23-84
106-46-7	MS	1,4-Dichlorobenzene	109	0.00	U	62.6	58	23-88
95-50-1	MS	1,2-Dichlorobenzene	109	0.00	U	65.2	60	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	109	0.00	U	78.2	72	19-122
100-51-6	MS	Benzyl alcohol	109	0.00	U	84.2	77	34-98
95-48-7	MS	o-Cresol	109	0.00	U	77.6	71	29-96
65794-96-9	MS	m,p-Cresols	109	0.00	U	81.5	75	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	109	0.00	U	87.3	80	32-115
67-72-1	MS	Hexachloroethane	109	0.00	U	58.8	54	25-82
98-95-3	MS	Nitrobenzene	109	0.00	U	80.6	74	35-124
78-59-1	MS	Isophorone	109	0.00	U	88.8	82	37-140
88-75-5	MS	2-Nitrophenol	109	0.00	U	81.9	75	33-115
105-67-9	MS	2,4-Dimethylphenol	109	0.00	U	82.5	76	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	109	0.00	U	87.8	81	35-112
120-83-2	MS	2,4-Dichlorophenol	109	0.00	U	84.7	78	36-110
65-85-0	MS	Benzoic acid	217	0.00	U	101	46	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike
Client ID: CAPA-13-29664MS **Matrix:** W
Lab Sample ID: 1202859746
Instrument: MSD4.I **Analysis Date:** 04/17/2013 18:36 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1295394
Inj. Vol: 1 uL **Batch ID:** 1295395

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	109	0.00	U	97.0	89	33-120
87-68-3	MS	Hexachlorobutadiene	109	0.00	U	62.2	57	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	109	0.00	U	93.0	86	36-116
91-57-6	MS	2-Methylnaphthalene	109	0.00	U	72.1	66	27-103
91-20-3	MS	Naphthalene	109	0.00	U	70.3	65	28-99
90-12-0	MS	1-Methylnaphthalene	109	0.00	U	72.6	67	29-107
77-47-4	MS	Hexachlorocyclopentadiene	109	0.00	U	41.1	38	25-75
88-06-2	MS	2,4,6-Trichlorophenol	109	0.00	U	94.4	87	36-111
95-95-4	MS	2,4,5-Trichlorophenol	109	0.00	U	95.6	88	34-115
91-58-7	MS	2-Chloronaphthalene	109	0.00	U	77.7	72	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	109	0.00	U	102	94	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	109	0.00	U	109	100	32-123
131-11-3	MS	Dimethylphthalate	109	0.00	U	102	93	43-115
606-20-2	MS	2,6-Dinitrotoluene	109	0.00	U	94.9	87	42-121
121-14-2	MS	2,4-Dinitrotoluene	109	0.00	U	97.3	89	37-125
208-96-8	MS	Acenaphthylene	109	0.00	U	83.0	76	34-103
83-32-9	MS	Acenaphthene	109	0.00	U	79.8	73	31-104
51-28-5	MS	2,4-Dinitrophenol	109	0.00	U	63.6	58	25-108
132-64-9	MS	Dibenzofuran	109	0.00	U	88.2	81	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	109	0.00	U	97.7	90	33-123
84-66-2	MS	Diethylphthalate	109	0.00	U	104	95	43-116
100-02-7	MS	4-Nitrophenol	109	0.00	U	47.0	43	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike
Client ID: CAPA-13-29664MS **Matrix:** W
Lab Sample ID: 1202859746
Instrument: MSD4.I **Analysis Date:** 04/17/2013 18:36 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1295394
Inj. Vol: 1 uL **Batch ID:** 1295395

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	109	0.00	U	90.7	83	33-110
7005-72-3	MS	4-Chlorophenylphenylether	109	0.00	U	90.3	83	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	109	0.00	U	116	106	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	109	0.00	U	101	93	31-113
122-39-4	MS	Diphenylamine	109	0.00	U	93.9	86	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	109	0.00	U	89.6	82	33-110
101-55-3	MS	4-Bromophenylphenylether	109	0.00	U	92.7	85	33-111
118-74-1	MS	Hexachlorobenzene	109	0.00	U	90.0	83	36-113
87-86-5	MS	Pentachlorophenol	109	0.00	U	93.7	86	25-110
85-01-8	MS	Phenanthrene	109	0.00	U	90.1	83	36-111
120-12-7	MS	Anthracene	109	0.00	U	91.1	84	36-107
84-74-2	MS	Di-n-butylphthalate	109	0.00	U	101	93	38-116
206-44-0	MS	Fluoranthene	109	0.00	U	95.6	88	35-116
129-00-0	MS	Pyrene	109	0.00	U	85.2	78	28-126
85-68-7	MS	Butylbenzylphthalate	109	0.00	U	94.9	87	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	109	0.00	U	94.2	87	30-121
56-55-3	MS	Benzo(a)anthracene	109	0.00	U	90.7	83	38-110
218-01-9	MS	Chrysene	109	0.00	U	91.6	84	35-115
117-84-0	MS	Di-n-octylphthalate	109	0.00	U	94.5	87	30-115
205-99-2	MS	Benzo(b)fluoranthene	109	0.00	U	89.2	82	37-115
207-08-9	MS	Benzo(k)fluoranthene	109	0.00	U	90.9	84	36-118
50-32-8	MS	Benzo(a)pyrene	109	0.00	U	88.5	81	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike

Client ID: CAPA-13-29664MS **Matrix:** W

Lab Sample ID: 1202859746

Instrument: MSD4.I **Analysis Date:** 04/17/2013 18:36 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1295394

Inj. Vol: 1 uL **Batch ID:** 1295395

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	109	0.00	U	102	94	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	109	0.00	U	112	103	26-124
191-24-2	MS	Benzo(ghi)perylene	109	0.00	U	103	95	25-122
123-91-1	MS	1,4-Dioxane	109	0.00	U	71.1	65	26-90
930-55-2	MS	N-Nitrosopyrrolidine	109	0.00	U	92.5	85	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	109	0.00	U	69.7	64	32-94
1912-24-9	MS	Atrazine	109	0.00	U	68.4	63	36-119
92-87-5	MS	Benzidine	217	0.00	U	56.8	26	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	109	0.00	U	84.7	78	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	109	0.00	U	63.8	59	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike Duplicate
Client ID: CAPA-13-29664MSD **Matrix:** W
Lab Sample ID: 1202859747
Instrument: MSD4.I **Analysis Date:** 04/17/2013 19:06 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1295394
Inj. Vol: 1 uL **Batch ID:** 1295395

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	109	0.00	U	65.0	60	27-85	5	0-30
110-86-1	MSD	Pyridine	109	0.00	U	80.3	74	21-93	5	0-30
62-53-3	MSD	Aniline	109	0.00	U	82.7	76	28-108	8	0-30
108-95-2	MSD	Phenol	109	0.00	U	41.7	38	15-100	5	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	109	0.00	U	78.2	72	27-114	5	0-30
95-57-8	MSD	2-Chlorophenol	109	0.00	U	75.3	69	32-103	6	0-30
541-73-1	MSD	1,3-Dichlorobenzene	109	0.00	U	58.5	54	23-84	7	0-30
106-46-7	MSD	1,4-Dichlorobenzene	109	0.00	U	59.0	54	23-88	6	0-30
95-50-1	MSD	1,2-Dichlorobenzene	109	0.00	U	59.6	55	24-86	9	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	109	0.00	U	74.0	68	19-122	5	0-30
100-51-6	MSD	Benzyl alcohol	109	0.00	U	81.1	75	34-98	4	0-30
95-48-7	MSD	o-Cresol	109	0.00	U	74.5	69	29-96	4	0-30
65794-96-9	MSD	m,p-Cresols	109	0.00	U	77.8	72	26-111	5	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	109	0.00	U	86.1	79	32-115	1	0-30
67-72-1	MSD	Hexachloroethane	109	0.00	U	56.9	52	25-82	3	0-30
98-95-3	MSD	Nitrobenzene	109	0.00	U	77.0	71	35-124	5	0-30
78-59-1	MSD	Isophorone	109	0.00	U	84.2	77	37-140	5	0-30
88-75-5	MSD	2-Nitrophenol	109	0.00	U	75.7	70	33-115	8	0-30
105-67-9	MSD	2,4-Dimethylphenol	109	0.00	U	80.9	74	31-106	2	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	109	0.00	U	83.2	77	35-112	5	0-30
120-83-2	MSD	2,4-Dichlorophenol	109	0.00	U	78.9	73	36-110	7	0-30
65-85-0	MSD	Benzoic acid	217	0.00	U	92.1	42	12-108	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike Duplicate
Client ID: CAPA-13-29664MSD **Matrix:** W
Lab Sample ID: 1202859747
Instrument: MSD4.I **Analysis Date:** 04/17/2013 19:06 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1295394
Inj. Vol: 1 uL **Batch ID:** 1295395

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	109	0.00	U	94.4	87	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	109	0.00	U	57.9	53	19-96	7	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	109	0.00	U	91.9	85	36-116	1	0-30
91-57-6	MSD	2-Methylnaphthalene	109	0.00	U	68.3	63	27-103	5	0-30
91-20-3	MSD	Naphthalene	109	0.00	U	65.6	60	28-99	7	0-30
90-12-0	MSD	1-Methylnaphthalene	109	0.00	U	66.6	61	29-107	9	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	109	0.00	U	38.3	35	25-75	7	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	109	0.00	U	87.3	80	36-111	8	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	109	0.00	U	92.5	85	34-115	3	0-30
91-58-7	MSD	2-Chloronaphthalene	109	0.00	U	71.5	66	33-96	8	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	109	0.00	U	104	95	31-120	1	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	109	0.00	U	112	103	32-123	3	0-30
131-11-3	MSD	Dimethylphthalate	109	0.00	U	102	94	43-115	1	0-30
606-20-2	MSD	2,6-Dinitrotoluene	109	0.00	U	94.0	87	42-121	1	0-30
121-14-2	MSD	2,4-Dinitrotoluene	109	0.00	U	99.3	91	37-125	2	0-30
208-96-8	MSD	Acenaphthylene	109	0.00	U	80.1	74	34-103	4	0-30
83-32-9	MSD	Acenaphthene	109	0.00	U	76.1	70	31-104	5	0-30
51-28-5	MSD	2,4-Dinitrophenol	109	0.00	U	60.5	56	25-108	5	0-30
132-64-9	MSD	Dibenzofuran	109	0.00	U	85.3	79	38-106	3	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	109	0.00	U	96.3	89	33-123	1	0-30
84-66-2	MSD	Diethylphthalate	109	0.00	U	105	96	43-116	1	0-30
100-02-7	MSD	4-Nitrophenol	109	0.00	U	50.6	47	26-72	7	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike Duplicate
Client ID: CAPA-13-29664MSD **Matrix:** W
Lab Sample ID: 1202859747
Instrument: MSD4.I **Analysis Date:** 04/17/2013 19:06 **Dilution:** 1
Analyst: JMB3 **Prep Batch ID** 1295394
Inj. Vol: 1 uL **Batch ID:** 1295395

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	109	0.00	U	86.9	80	33-110	4	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	109	0.00	U	89.1	82	30-112	1	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	109	0.00	U	129	119	28-131	11	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	109	0.00	U	99.7	92	31-113	1	0-30
122-39-4	MSD	Diphenylamine	109	0.00	U	91.3	84	36-110	3	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	109	0.00	U	85.8	79	33-110	4	0-30
101-55-3	MSD	4-Bromophenylphenylether	109	0.00	U	88.3	81	33-111	5	0-30
118-74-1	MSD	Hexachlorobenzene	109	0.00	U	87.8	81	36-113	2	0-30
87-86-5	MSD	Pentachlorophenol	109	0.00	U	90.7	83	25-110	3	0-30
85-01-8	MSD	Phenanthrene	109	0.00	U	87.2	80	36-111	3	0-30
120-12-7	MSD	Anthracene	109	0.00	U	86.0	79	36-107	6	0-30
84-74-2	MSD	Di-n-butylphthalate	109	0.00	U	96.8	89	38-116	4	0-30
206-44-0	MSD	Fluoranthene	109	0.00	U	92.8	85	35-116	3	0-30
129-00-0	MSD	Pyrene	109	0.00	U	80.1	74	28-126	6	0-30
85-68-7	MSD	Butylbenzylphthalate	109	0.00	U	91.6	84	32-120	3	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	109	0.00	U	92.1	85	30-121	2	0-30
56-55-3	MSD	Benzo(a)anthracene	109	0.00	U	87.5	81	38-110	4	0-30
218-01-9	MSD	Chrysene	109	0.00	U	87.1	80	35-115	5	0-30
117-84-0	MSD	Di-n-octylphthalate	109	0.00	U	93.2	86	30-115	1	0-30
205-99-2	MSD	Benzo(b)fluoranthene	109	0.00	U	86.5	80	37-115	3	0-30
207-08-9	MSD	Benzo(k)fluoranthene	109	0.00	U	87.5	81	36-118	4	0-30
50-32-8	MSD	Benzo(a)pyrene	109	0.00	U	85.7	79	36-109	3	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-724 **Sample Type:** Matrix Spike Duplicate

Client ID: CAPA-13-29664MSD **Matrix:** W

Lab Sample ID: 1202859747

Instrument: MSD4.I **Analysis Date:** 04/17/2013 19:06 **Dilution:** 1

Analyst: JMB3 **Prep Batch ID** 1295394

Inj. Vol: 1 uL **Batch ID:** 1295395

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	109	0.00	U	91.5	84	28-121	11	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	109	0.00	U	104	95	26-124	7	0-30
191-24-2	MSD	Benzo(ghi)perylene	109	0.00	U	93.2	86	25-122	10	0-30
123-91-1	MSD	1,4-Dioxane	109	0.00	U	69.2	64	26-90	3	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	109	0.00	U	93.6	86	40-113	1	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	109	0.00	U	64.7	59	32-94	7	0-30
1912-24-9	MSD	Atrazine	109	0.00	U	67.0	62	36-119	2	0-30
92-87-5	MSD	Benzidine	217	0.00	U	197	91	10-125	110 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	109	0.00	U	94.5	87	27-109	11	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	109	0.00	U	59.1	54	23-90	8	0-30

Method Blank Summary

SDG Number:	**2013-724**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1295394**	**Instrument ID:**	**MSD4.I**	**Data File:**	**s041713.B\s4d1717.D**
Lab Sample ID:	**1202859744**	**Prep Date:**	**04/17/2013 08:00**	**Analyzed:**	**04/17/13 17:07**
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 1295394	1202859745	s041713.B\s4d1718.D	04/17/13	1737
02	CAPA-13-29664	323928001	s041713.B\s4d1719.D	04/17/13	1806
03	CAPA-13-29664MS	1202859746	s041713.B\s4d1720.D	04/17/13	1836
04	CAPA-13-29664MSD	1202859747	s041713.B\s4d1721.D	04/17/13	1906

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202859744**				
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1295394**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 17:07**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1717.D**	**Column:**	**DB-5ms**		

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

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202859744**				
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1295394**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 17:07**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1717.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	10.0	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	10.0	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	J	0.330	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	J	0.420	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	J	0.380	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202859744**				
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1295394**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 17:07**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1717.D**	**Column:**	**DB-5ms**		

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

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	80.2	100	ug/L	80.2	(23%-130%)
2-Fluorobiphenyl	36.5	50.0	ug/L	73.1	(30%-104%)
2-Fluorophenol	36.3	100	ug/L	36.3	(14%-77%)
Nitrobenzene-d5	37.7	50.0	ug/L	75.3	(34%-125%)
Phenol-d5	19.9	100	ug/L	19.9	(10%-78%)
p-Terphenyl-d14	51.3	50.0	ug/L	103	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.049	36.1	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202859745**				
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1295394**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 17:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1718.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		21.7	ug/L	3.00	10.0
110-86-1	Pyridine		31.9	ug/L	3.00	10.0
62-53-3	Aniline		37.7	ug/L	3.00	10.0
108-95-2	Phenol		10.7	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		36.6	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		32.8	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		27.8	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		27.8	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		28.5	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		36.2	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		32.1	ug/L	3.00	10.0
95-48-7	o-Cresol		27.9	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		27.2	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		39.9	ug/L	3.00	10.0
67-72-1	Hexachloroethane		26.9	ug/L	3.00	10.0
98-95-3	Nitrobenzene		36.4	ug/L	3.00	10.0
78-59-1	Isophorone		40.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		36.4	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		36.3	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		40.8	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		37.7	ug/L	3.00	10.0
65-85-0	Benzoic acid		22.5	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		43.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		28.8	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		39.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		35.5	ug/L	0.300	1.00
91-20-3	Naphthalene		32.9	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		34.8	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		18.3	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		41.7	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		41.7	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		37.0	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		45.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		46.1	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		44.9	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		42.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202859745**				
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1295394**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 17:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1718.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		43.9	ug/L	3.00	10.0
208-96-8	Acenaphthylene		39.2	ug/L	0.300	1.00
83-32-9	Acenaphthene		38.3	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		22.5	ug/L	5.00	20.0
132-64-9	Dibenzofuran		41.4	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		42.6	ug/L	3.00	10.0
84-66-2	Diethylphthalate		46.5	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		10.4	ug/L	3.00	10.0
86-73-7	Fluorene		42.6	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		42.7	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		52.8	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		42.4	ug/L	3.00	10.0
122-39-4	Diphenylamine		44.1	ug/L	3.00	10.0
122-66-7	Azobenzene		42.4	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		45.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		42.8	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		40.8	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		41.9	ug/L	0.300	1.00
120-12-7	Anthracene		42.1	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		47.4	ug/L	3.00	10.0
206-44-0	Fluoranthene		44.4	ug/L	0.300	1.00
129-00-0	Pyrene		39.5	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		44.3	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		44.9	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		41.3	ug/L	0.300	1.00
218-01-9	Chrysene		41.8	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		44.2	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		40.1	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		40.2	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		40.5	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	B	47.6	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	B	51.5	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	B	48.4	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		23.8	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		40.2	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**			**Matrix:**	**WATER**
Lab Sample ID:	**1202859745**				
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1295394**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 17:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1718.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		33.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		28.3	ug/L	3.00	10.0
92-87-5	Benzidine		92.8	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		42.4	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		29.2	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	90.7	100	ug/L	90.7	(23%-130%)
2-Fluorobiphenyl	37.3	50.0	ug/L	74.6	(30%-104%)
2-Fluorophenol	34.7	100	ug/L	34.7	(14%-77%)
Nitrobenzene-d5	38.0	50.0	ug/L	75.9	(34%-125%)
Phenol-d5	20.5	100	ug/L	20.5	(10%-78%)
p-Terphenyl-d14	45.5	50.0	ug/L	91.1	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202859746**	**Date Received:**	**04/16/2013 09:00**		
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 18:36**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1720.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		68.3	ug/L	6.52	21.7
110-86-1	Pyridine		76.6	ug/L	6.52	21.7
62-53-3	Aniline		89.3	ug/L	6.52	21.7
108-95-2	Phenol		44.1	ug/L	6.52	21.7
111-44-4	bis(2-Chloroethyl) ether		81.9	ug/L	6.52	21.7
95-57-8	2-Chlorophenol		80.0	ug/L	6.52	21.7
541-73-1	1,3-Dichlorobenzene		62.9	ug/L	6.52	21.7
106-46-7	1,4-Dichlorobenzene		62.6	ug/L	6.52	21.7
95-50-1	1,2-Dichlorobenzene		65.2	ug/L	6.52	21.7
39638-32-9	bis(2-Chloroisopropyl)ether		78.2	ug/L	6.52	21.7
100-51-6	Benzyl alcohol		84.2	ug/L	6.52	21.7
95-48-7	o-Cresol		77.6	ug/L	6.52	21.7
65794-96-9	m,p-Cresols		81.5	ug/L	6.52	21.7
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		87.3	ug/L	6.52	21.7
67-72-1	Hexachloroethane		58.8	ug/L	6.52	21.7
98-95-3	Nitrobenzene		80.6	ug/L	6.52	21.7
78-59-1	Isophorone		88.8	ug/L	6.52	21.7
88-75-5	2-Nitrophenol		81.9	ug/L	6.52	21.7
105-67-9	2,4-Dimethylphenol		82.5	ug/L	6.52	21.7
111-91-1	bis(2-Chloroethoxy)methane		87.8	ug/L	6.52	21.7
120-83-2	2,4-Dichlorophenol		84.7	ug/L	6.52	21.7
65-85-0	Benzoic acid		101	ug/L	13.0	43.5
106-47-8	4-Chloroaniline		97.0	ug/L	7.17	21.7
87-68-3	Hexachlorobutadiene		62.2	ug/L	6.52	21.7
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		93.0	ug/L	6.52	21.7
91-57-6	2-Methylnaphthalene		72.1	ug/L	0.652	2.17
91-20-3	Naphthalene		70.3	ug/L	0.652	2.17
90-12-0	1-Methylnaphthalene		72.6	ug/L	0.652	2.17
77-47-4	Hexachlorocyclopentadiene		41.1	ug/L	6.52	21.7
88-06-2	2,4,6-Trichlorophenol		94.4	ug/L	6.52	21.7
95-95-4	2,4,5-Trichlorophenol		95.6	ug/L	6.52	21.7
91-58-7	2-Chloronaphthalene		77.7	ug/L	0.652	2.17
88-74-4	2-Nitroaniline		102	ug/L	6.52	21.7
99-09-2	*o-Nitroaniline* 3-Nitroaniline *m-Nitroaniline*		109	ug/L	6.52	21.7
131-11-3	Dimethylphthalate		102	ug/L	6.52	21.7
606-20-2	2,6-Dinitrotoluene		94.9	ug/L	6.52	21.7

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202859746**	**Date Received:**	**04/16/2013 09:00**		
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 18:36**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1720.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		97.3	ug/L	6.52	21.7
208-96-8	Acenaphthylene		83.0	ug/L	0.652	2.17
83-32-9	Acenaphthene		79.8	ug/L	0.652	2.17
51-28-5	2,4-Dinitrophenol		63.6	ug/L	10.9	43.5
132-64-9	Dibenzofuran		88.2	ug/L	6.52	21.7
58-90-2	2,3,4,6-Tetrachlorophenol		97.7	ug/L	6.52	21.7
84-66-2	Diethylphthalate		104	ug/L	6.52	21.7
100-02-7	4-Nitrophenol		47.0	ug/L	6.52	21.7
86-73-7	Fluorene		90.7	ug/L	0.652	2.17
7005-72-3	4-Chlorophenylphenylether		90.3	ug/L	6.52	21.7
100-01-6	4-Nitroaniline		116	ug/L	6.52	21.7
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		101	ug/L	6.52	21.7
122-39-4	Diphenylamine		93.9	ug/L	6.52	21.7
122-66-7	Azobenzene		89.6	ug/L	6.52	21.7
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		92.7	ug/L	6.52	21.7
118-74-1	Hexachlorobenzene		90.0	ug/L	6.52	21.7
87-86-5	Pentachlorophenol		93.7	ug/L	6.52	21.7
88-85-7	Dinoseb	U	21.7	ug/L	6.52	21.7
85-01-8	Phenanthrene		90.1	ug/L	0.652	2.17
120-12-7	Anthracene		91.1	ug/L	0.652	2.17
84-74-2	Di-n-butylphthalate		101	ug/L	6.52	21.7
206-44-0	Fluoranthene		95.6	ug/L	0.652	2.17
129-00-0	Pyrene		85.2	ug/L	0.652	2.17
85-68-7	Butylbenzylphthalate		94.9	ug/L	6.52	21.7
117-81-7	bis(2-Ethylhexyl)phthalate		94.2	ug/L	6.52	21.7
56-55-3	Benzo(a)anthracene		90.7	ug/L	0.652	2.17
218-01-9	Chrysene		91.6	ug/L	0.652	2.17
117-84-0	Di-n-octylphthalate		94.5	ug/L	6.52	21.7
205-99-2	Benzo(b)fluoranthene		89.2	ug/L	0.652	2.17
207-08-9	Benzo(k)fluoranthene		90.9	ug/L	0.652	2.17
50-32-8	Benzo(a)pyrene		88.5	ug/L	0.957	2.17
193-39-5	Indeno(1,2,3-cd)pyrene	B	102	ug/L	0.652	2.17
53-70-3	Dibenzo(a,h)anthracene	B	112	ug/L	0.652	2.17
191-24-2	Benzo(ghi)perylene	B	103	ug/L	0.652	2.17
123-91-1	1,4-Dioxane		71.1	ug/L	6.52	21.7
55-18-5	N-Nitrosodiethylamine	U	21.7	ug/L	6.52	21.7
930-55-2	N-Nitrosopyrrolidine		92.5	ug/L	6.52	21.7

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202859746**	**Date Received:**	**04/16/2013 09:00**		
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 18:36**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1720.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	21.7	ug/L	6.52	21.7
95-94-3	1,2,4,5-Tetrachlorobenzene		69.7	ug/L	6.52	21.7
608-93-5	Pentachlorobenzene	U	21.7	ug/L	6.52	21.7
1912-24-9	Atrazine		68.4	ug/L	6.52	21.7
92-87-5	Benzidine		56.8	ug/L	6.52	21.7
91-94-1	3,3'-Dichlorobenzidine		84.7	ug/L	6.52	21.7
120-82-1	1,2,4-Trichlorobenzene		63.8	ug/L	6.52	21.7

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	205	217	ug/L	94.1	(23%-130%)
2-Fluorobiphenyl	79.0	109	ug/L	72.7	(30%-104%)
2-Fluorophenol	118	217	ug/L	54.5	(14%-77%)
Nitrobenzene-d5	82.0	109	ug/L	75.5	(34%-125%)
Phenol-d5	85.3	217	ug/L	39.2	(10%-78%)
p-Terphenyl-d14	101	109	ug/L	92.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202859747**	**Date Received:**	**04/16/2013 09:00**		
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 19:06**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1721.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		65.0	ug/L	6.52	21.7
110-86-1	Pyridine		80.3	ug/L	6.52	21.7
62-53-3	Aniline		82.7	ug/L	6.52	21.7
108-95-2	Phenol		41.7	ug/L	6.52	21.7
111-44-4	bis(2-Chloroethyl) ether		78.2	ug/L	6.52	21.7
95-57-8	2-Chlorophenol		75.3	ug/L	6.52	21.7
541-73-1	1,3-Dichlorobenzene		58.5	ug/L	6.52	21.7
106-46-7	1,4-Dichlorobenzene		59.0	ug/L	6.52	21.7
95-50-1	1,2-Dichlorobenzene		59.6	ug/L	6.52	21.7
39638-32-9	bis(2-Chloroisopropyl)ether		74.0	ug/L	6.52	21.7
100-51-6	Benzyl alcohol		81.1	ug/L	6.52	21.7
95-48-7	o-Cresol		74.5	ug/L	6.52	21.7
65794-96-9	m,p-Cresols		77.8	ug/L	6.52	21.7
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		86.1	ug/L	6.52	21.7
67-72-1	Hexachloroethane		56.9	ug/L	6.52	21.7
98-95-3	Nitrobenzene		77.0	ug/L	6.52	21.7
78-59-1	Isophorone		84.2	ug/L	6.52	21.7
88-75-5	2-Nitrophenol		75.7	ug/L	6.52	21.7
105-67-9	2,4-Dimethylphenol		80.9	ug/L	6.52	21.7
111-91-1	bis(2-Chloroethoxy)methane		83.2	ug/L	6.52	21.7
120-83-2	2,4-Dichlorophenol		78.9	ug/L	6.52	21.7
65-85-0	Benzoic acid		92.1	ug/L	13.0	43.5
106-47-8	4-Chloroaniline		94.4	ug/L	7.17	21.7
87-68-3	Hexachlorobutadiene		57.9	ug/L	6.52	21.7
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		91.9	ug/L	6.52	21.7
91-57-6	2-Methylnaphthalene		68.3	ug/L	0.652	2.17
91-20-3	Naphthalene		65.6	ug/L	0.652	2.17
90-12-0	1-Methylnaphthalene		66.6	ug/L	0.652	2.17
77-47-4	Hexachlorocyclopentadiene		38.3	ug/L	6.52	21.7
88-06-2	2,4,6-Trichlorophenol		87.3	ug/L	6.52	21.7
95-95-4	2,4,5-Trichlorophenol		92.5	ug/L	6.52	21.7
91-58-7	2-Chloronaphthalene		71.5	ug/L	0.652	2.17
88-74-4	2-Nitroaniline		104	ug/L	6.52	21.7
99-09-2	3-Nitroaniline *m-Nitroaniline*		112	ug/L	6.52	21.7
131-11-3	Dimethylphthalate		102	ug/L	6.52	21.7
606-20-2	2,6-Dinitrotoluene		94.0	ug/L	6.52	21.7

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202859747**	**Date Received:**	**04/16/2013 09:00**		
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 19:06**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1721.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		99.3	ug/L	6.52	21.7
208-96-8	Acenaphthylene		80.1	ug/L	0.652	2.17
83-32-9	Acenaphthene		76.1	ug/L	0.652	2.17
51-28-5	2,4-Dinitrophenol		60.5	ug/L	10.9	43.5
132-64-9	Dibenzofuran		85.3	ug/L	6.52	21.7
58-90-2	2,3,4,6-Tetrachlorophenol		96.3	ug/L	6.52	21.7
84-66-2	Diethylphthalate		105	ug/L	6.52	21.7
100-02-7	4-Nitrophenol		50.6	ug/L	6.52	21.7
86-73-7	Fluorene		86.9	ug/L	0.652	2.17
7005-72-3	4-Chlorophenylphenylether		89.1	ug/L	6.52	21.7
100-01-6	4-Nitroaniline		129	ug/L	6.52	21.7
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		99.7	ug/L	6.52	21.7
122-39-4	Diphenylamine		91.3	ug/L	6.52	21.7
122-66-7	Azobenzene		85.8	ug/L	6.52	21.7
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		88.3	ug/L	6.52	21.7
118-74-1	Hexachlorobenzene		87.8	ug/L	6.52	21.7
87-86-5	Pentachlorophenol		90.7	ug/L	6.52	21.7
88-85-7	Dinoseb	U	21.7	ug/L	6.52	21.7
85-01-8	Phenanthrene		87.2	ug/L	0.652	2.17
120-12-7	Anthracene		86.0	ug/L	0.652	2.17
84-74-2	Di-n-butylphthalate		96.8	ug/L	6.52	21.7
206-44-0	Fluoranthene		92.8	ug/L	0.652	2.17
129-00-0	Pyrene		80.1	ug/L	0.652	2.17
85-68-7	Butylbenzylphthalate		91.6	ug/L	6.52	21.7
117-81-7	bis(2-Ethylhexyl)phthalate		92.1	ug/L	6.52	21.7
56-55-3	Benzo(a)anthracene		87.5	ug/L	0.652	2.17
218-01-9	Chrysene		87.1	ug/L	0.652	2.17
117-84-0	Di-n-octylphthalate		93.2	ug/L	6.52	21.7
205-99-2	Benzo(b)fluoranthene		86.5	ug/L	0.652	2.17
207-08-9	Benzo(k)fluoranthene		87.5	ug/L	0.652	2.17
50-32-8	Benzo(a)pyrene		85.7	ug/L	0.957	2.17
193-39-5	Indeno(1,2,3-cd)pyrene	B	91.5	ug/L	0.652	2.17
53-70-3	Dibenzo(a,h)anthracene	B	104	ug/L	0.652	2.17
191-24-2	Benzo(ghi)perylene	B	93.2	ug/L	0.652	2.17
123-91-1	1,4-Dioxane		69.2	ug/L	6.52	21.7
55-18-5	N-Nitrosodiethylamine	U	21.7	ug/L	6.52	21.7
930-55-2	N-Nitrosopyrrolidine		93.6	ug/L	6.52	21.7

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-724**	**Date Collected:**	**04/12/2013 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1202859747**	**Date Received:**	**04/16/2013 09:00**		
Client Sample:	**QC for batch 1295394**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAPA-13-29664MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1295395**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**04/17/2013 19:06**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**04/17/2013 08:00**	**Aliquot:**	**460 mL**	**Final Volume:**	**1 mL**
Data File:	**s041713.B\s4d1721.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	21.7	ug/L	6.52	21.7
95-94-3	1,2,4,5-Tetrachlorobenzene		64.7	ug/L	6.52	21.7
608-93-5	Pentachlorobenzene	U	21.7	ug/L	6.52	21.7
1912-24-9	Atrazine		67.0	ug/L	6.52	21.7
92-87-5	Benzidine		197	ug/L	6.52	21.7
91-94-1	3,3'-Dichlorobenzidine		94.5	ug/L	6.52	21.7
120-82-1	1,2,4-Trichlorobenzene		59.1	ug/L	6.52	21.7

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	202	217	ug/L	92.9	(23%-130%)
2-Fluorobiphenyl	77.5	109	ug/L	71.3	(30%-104%)
2-Fluorophenol	113	217	ug/L	51.9	(14%-77%)
Nitrobenzene-d5	77.8	109	ug/L	71.6	(34%-125%)
Phenol-d5	81.5	217	ug/L	37.5	(10%-78%)
p-Terphenyl-d14	98.3	109	ug/L	90.4	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
18-APR-13	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1295395	See Below		

Potentially affected work order(s)(SDG): 323928(2013-724)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. The LCS(1202859745) recovered Hexachlorocyclopentadiene at 37%. The limits are 38%-79%.	1. The Hexachlorocyclopentadiene failure represents less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.
2. The MS(1202859746)/MSD(1202859747) RPD value for Benzidine was 110%. The limit is 30%.	2. Since Benzidine was individually within the acceptance limits in the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Josh Brooks 18-APR-13

Data Validator/Group Leader:

Barbara Bailey 18-APR-13

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC-MS/MS
ARS International (ARSL)
SDG 2013-724

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:	1296373
Prep Batch Number:	1296372

Sample Analysis

Sample ID	Client ID
323928003	CAPA-13-29675
1202862192	Interference Check Sample (ICS)
1202862188	Method Blank (MB)
1202862189	Laboratory Control Sample (LCS)
1202862190	323928003(CAPA-13-29675) Matrix Spike (MS)
1202862191	323928003(CAPA-13-29675) 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
The initial calibration verification standard (ICV) met the acceptance criteria.

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

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

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

Quality Control (QC) Information

Method Blank (MB) Statement
The MB 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 323928003 (CAPA-13-29675) 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
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

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: 2013−724 GEL Work Order: 323928

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 **Name: Michael Penny**

Date: 25 APR 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: 1296372

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAPA-13-29675

Date Received: 16-APR-13

GEL Job No (SDG): 2013-724

GEL Sample ID: 323928003

Date Filtered: 24-APR-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	0.427	ug/L		1	24-APR-13 16:42	per0424017a
	Perchlorate Isotope Ratio			3.1			1	24-APR-13 16:42	per0424017a
14797-73-0	Perchlorate-101	.05	.2	0.426	ug/L		1	24-APR-13 16:42	per0424017a
	Perchlorate-O(18)			0.516	ug/L		1	24-APR-13 16:42	per0424017a

^ 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): 2013-724

Extract Batch Code: 1296372

Date Filtered: 24-APR-13

Matrix: WATER

Sample ID: 1202862189

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.203	ug/L	102		85 - 115
Perchlorate Isotope Ratio		3.2				-
Perchlorate-101	0.200	.197	ug/L	98.3		85 - 115
Perchlorate-O(18)		.49	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): 2013-724

Extract Batch Code: 1296372

Date Extracted: 24-APR-13

GEL MS/PS ID: 1202862190

Client ID: CAPA-13-29675

GEL MSD/PSD ID: 1202862191

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	0.427	ug/L	0.636	104	.63	102	.83	30	75 - 125
Perchlorate Isotope Ratio	0	3.10		3.14		3.08		1.84		-
Perchlorate-101	0.200	0.426	ug/L	0.628	101	.635	104	1.01	30	75 - 125
Perchlorate-O(18)	0	0.516	ug/L	0.520		.51		2.08		-

^ 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: 1296372

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 24-APR-13

GEL Job No (SDG): 2013-724

GEL Sample ID: 1202862188

Date Filtered: 24-APR-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	0.050	ug/L	U	1	24-APR-13 15:54	per0424012a
	Perchlorate Isotope Ratio						1	24-APR-13 15:54	per0424012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	24-APR-13 15:54	per0424012a
	Perchlorate-O(18)			0.496	ug/L		1	24-APR-13 15:54	per0424012a

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

*Concentration =

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

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1296372

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 24-APR-13

GEL Job No (SDG): 2013-724

GEL Sample ID: 1202862189

Date Filtered: 24-APR-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	0.203	ug/L		1	24-APR-13 16:04	per0424013a
	Perchlorate Isotope Ratio			3.2			1	24-APR-13 16:04	per0424013a
14797-73-0	Perchlorate-101	.05	.2	0.197	ug/L	J	1	24-APR-13 16:04	per0424013a
	Perchlorate-O(18)			0.490	ug/L		1	24-APR-13 16:04	per0424013a

^ 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: 1296372

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): 2013-724

GEL Sample ID: 1202862192

Date Filtered: 24-APR-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	0.213	ug/L		1	24-APR-13 16:13	per0424014a
	Perchlorate Isotope Ratio			3.32			1	24-APR-13 16:13	per0424014a
14797-73-0	Perchlorate-101	.05	.2	0.198	ug/L	J	1	24-APR-13 16:13	per0424014a
	Perchlorate-O(18)			0.511	ug/L		1	24-APR-13 16:13	per0424014a

^ 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: 1296372

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAPA-13-29675MS

Date Received: 16-APR-13

GEL Job No (SDG): 2013-724

GEL Sample ID: 1202862190

Date Filtered: 24-APR-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	0.636	ug/L		1	24-APR-13 16:51	per0424018a
	Perchlorate Isotope Ratio			3.14			1	24-APR-13 16:51	per0424018a
14797-73-0	Perchlorate-101	.05	.2	0.628	ug/L		1	24-APR-13 16:51	per0424018a
	Perchlorate-O(18)			0.520	ug/L		1	24-APR-13 16:51	per0424018a

^ 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: 1296372

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAPA-13-29675MSD

Date Received: 16-APR-13

GEL Job No (SDG): 2013-724

GEL Sample ID: 1202862191

Date Filtered: 24-APR-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	0.630	ug/L		1	24-APR-13 17:03	per0424019a
	Perchlorate Isotope Ratio			3.08			1	24-APR-13 17:03	per0424019a
14797-73-0	Perchlorate-101	.05	.2	0.635	ug/L		1	24-APR-13 17:03	per0424019a
	Perchlorate-O(18)			0.510	ug/L		1	24-APR-13 17:03	per0424019a

^ 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 =

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

Explosives by LCMSMS Analysis

Case Narrative

LC-MS/MS Case Narrative
ARS International (ARSL)
SDG 2013-724

Method/Analysis Information

Procedure:	**Definitive Low Level Analysis of Nitroaromatic Explosives Utilizing Liquid Chromatography - Mass Spectrometry / Mass Spectrometry (LC-MS/MS) by SW-846 Method 8321 Modified (8321M)**
Analytical Method:	SW846 3535/8321A Modified
Prep Method:	SW846 Method 3535
Analytical Batch Number:	1296101
Prep Batch Number:	1296100

Sample Analysis

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

Sample ID	Client ID
323928002	CAPA-13-29664
1202861558	Method Blank (MB)
1202861559	Laboratory Control Sample (LCS)
1202861560	323928002(CAPA-13-29664) Matrix Spike (MS)
1202861561	323928002(CAPA-13-29664) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

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

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-056 REV# 17.

Primary Analyte Analysis

Calibration Information

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

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

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

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

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

Quality Control (QC) Information

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

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

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

QC Sample Designation
Client sample 323928002 (CAPA-13-29664) was chosen for matrix spike and matrix spike duplicate analysis.

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

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

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

Internal Standard (ISTD) Acceptance
A final internal standard concentration of 100ug/L is employed in order to meet the minimum response factor requirement of 0.01 per EPA Method 8000C for the analysis of explosives on the API 4000.

The internal standard responses were within the required acceptance criteria for all samples and QC in this SDG.

Technical Information

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

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

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

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

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

Secondary Analyte Analysis

Calibration Information

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

Calibration Verification Standard Requirements
All calibration verification standards for this analysis have not met requirements for this SDG.

Calibration verification standards EXS04250034 and EXS04250042 did not meet acceptance criteria of 80-120% for all analytes. The data are Q qualified and are reported as stated in the SOP.

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

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

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

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

Quality Control (QC) Information

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

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

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

QC Sample Designation
Client sample 323928002 (CAPA-13-29664) was chosen for matrix spike and matrix spike duplicate analysis.

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

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

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

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

Technical Information

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

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

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

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

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

Miscellaneous Information

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

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

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

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

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

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

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

System Configuration

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

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

Electronic Packaging Comment

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

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

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

Chromatographic Columns

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

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

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

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

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-724 GEL Work Order: 323928

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

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

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

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

Review/Validation

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

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

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

Date: 03 MAY 2013 **Title: Group Leader**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 323928002

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0429024.wiff

Date Analyzed: 30-APR-13 03:28

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.258	U	0.0825	0.258
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.258	U	0.0825	0.258
121-14-2	*2,4-Dinitrotoluene*				
13980-04-6	TNX	0.258	U	0.0825	0.258
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.258	U	0.0825	0.258
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.258	U	0.0825	0.258
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.258	U	0.0825	0.258
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.258	U	0.0825	0.258
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.258	U	0.0825	0.258
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.258	U	0.0845	0.258
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.258	U	0.0825	0.258
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.258	U	0.0825	0.258
99-08-1	*m-Nitrotoluene*				
99-35-4	1,3,5-Trinitrobenzene	0.258	U	0.0825	0.258
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.258	U	0.0825	0.258
99-65-0	*m-Dinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 323928002

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	0.515	U	0.0825	0.515
479-45-8	*Tetryl*				
78-11-5	PETN	0.515	U	0.103	0.515
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.515	U	0.155	0.515
99-99-0	*p-Nitrotoluene*				
2691-41-0	HMX	1.72		0.0825	0.258
2691-41-0	*HMX*				
121-82-4	RDX	2.08		0.0825	0.258
121-82-4	*RDX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 323928002

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS04250039.wiff

Date Analyzed: 25-APR-13 21:42

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.03	U	0.309	1.03
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.03	U	0.309	1.03
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.03	U	0.309	1.03
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.58	QU	0.515	2.58
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.58	QU	0.515	2.58
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2013-724

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

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
323928002	CAPA-13-29664	90	66 - 120	
323928002	CAPA-13-29664	78	66 - 120	
1202861558	MB for batch 1296100	90.4	66 - 120	
1202861558	MB for batch 1296100	76.8	66 - 120	
1202861559	LCS for batch 1296100	87.6	66 - 120	
1202861559	LCS for batch 1296100	75.2	66 - 120	
1202861560	CAPA-13-29664MS	84.8	66 - 120	
1202861560	CAPA-13-29664MS	79.2	66 - 120	
1202861561	CAPA-13-29664MSD	82.4	66 - 120	
1202861561	CAPA-13-29664MSD	76.4	66 - 120	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-724

Extract Batch Code: 1296100

Date Extracted: 19-APR-13

GEL LCS ID: 1202861559

GEL LCSDUP ID:

Analysis Date/Time: 30-APR-13 02:53

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec	#	LCSD Conc	LCSD Rec	#	RPD	#	RPD	Recovery Limits
m-Dinitrobenzene	5	5.06	101								79 - 119
m-Nitrotoluene	5	4.86	97.2								59 - 115
o-Nitrotoluene	5	4.59	91.8								60 - 111
1,3,5-Trinitrobenzene	5	5.04	101								62 - 114
Tetryl	5	4.68	93.6								40 - 118
p-Nitrotoluene	5	4.84	96.8								61 - 113
2,4,6-Trinitrotoluene	5	5.04	101								72 - 124
2,6-Dinitrotoluene	5	4.92	98.4								77 - 111
4-Amino-2,6-dinitrotoluene	5	5.02	100								72 - 122
TNX	5	3.91	78.2								65 - 116
RDX	5	5.41	108								77 - 122
PETN	5	4.77	95.4								64 - 121
Nitrobenzene	5	4.71	94.2								64 - 112
MNX	5	4.82	96.4								67 - 125
HMX	5	4.61	92.2								66 - 110
DNX	5	4.34	86.8								72 - 117
2-Amino-4,6-dinitrotoluene	5	5.59	112								73 - 121
2,4-Dinitrotoluene	5	5.31	106								75 - 119

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

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-724

Extract Batch Code: 1296100

Date Extracted: 19-APR-13

GEL LCS ID: 1202861559

GEL LCSDUP ID:

Analysis Date/Time: 25-APR-13 21:25

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
2,4-Diamino-6-nitrotoluene	5	4.18	83.6					61 - 105
2,6-Diamino-4-nitrotoluene	5	3.77	75.4					64 - 115
3,5-Dinitroaniline	5	4.08	81.6					73 - 112
TATB	2.5	1.64	65.6					32 - 169
tris(o-cresyl) phosphate	5	2.94	58.8					30 - 82

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

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAPA-13-29664

Lab Code: GEL

GEL Job No (SDG) 2013-724

Extract Batch Code: 1296100

Date Extracted: 19-APR-13

GEL Spike ID: 1202861560

GEL SpikeDup ID: 1202861561

Analysis Date/Time: 30-APR-13 04:03

MSD Analysis Date/Time: 30-APR-13 04:38

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4-Dinitrotoluene	5.15464	0	4.96	96.2		5.07	98.4		2.26		25	72 - 126
2,6-Dinitrotoluene	5.15464	0	4.9	95		4.76	92.4		2.78		25	74 - 117
2-Amino-4,6-dinitrotoluene	5.15464	0	5.29	103		5.02	97.4		5.2		25	67 - 129
4-Amino-2,6-dinitrotoluene	5.15464	.0352	4.89	94.1		5.15	99.3		5.34		25	64 - 132
DNX	5.15464	0	4.47	86.8		4.65	90.2		3.84		25	67 - 124
HMX	5.15464	1.72	5.91	81.2		6.22	87.2		5.1		25	60 - 121
MNX	5.15464	.0494	4.53	86.8		4.44	85.2		1.84		25	67 - 127
Nitrobenzene	5.15464	0	4.58	88.8		4.89	94.8		6.54		25	60 - 113
PETN	5.15464	0	4.66	90.4		4.54	88		2.69		25	58 - 127
1,3,5-Trinitrobenzene	5.15464	0	4.72	91.6		5.02	97.4		6.14		25	58 - 121
2,4,6-Trinitrotoluene	5.15464	.00242	4.82	93.6		4.84	93.8		.213		25	64 - 132
RDX	5.15464	2.08	6.68	89.2		6.91	93.6		3.34		25	64 - 137
TNX	5.15464	0	3.99	77.4		4.19	81.2		4.79		25	61 - 117
Tetryl	5.15464	0	2.77	53.8		2.73	53		1.5		25	30 - 110
m-Dinitrobenzene	5.15464	0	4.9	95		5.05	98		3.11		25	73 - 126
m-Nitrotoluene	5.15464	0	4.4	85.4		4.48	87		1.86		25	56 - 114
o-Nitrotoluene	5.15464	0	4.46	86.6		4.56	88.4		2.06		25	57 - 113
p-Nitrotoluene	5.15464	0	4.26	82.6		4.46	86.6		4.73		25	54 - 119

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

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAPA-13-29664

Lab Code: GEL

GEL Job No (SDG) 2013-724

Extract Batch Code: 1296100

Date Extracted: 19-APR-13

GEL Spike ID: 1202861560

GEL SpikeDup ID: 1202861561

Analysis Date/Time: 25-APR-13 21:59

MSD Analysis Date/Time: 25-APR-13 22:15

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4-Diamino-6-nitrotoluene	5.15464	0	4.31	83.6		4.21	81.6		2.42		25	66 - 108
2,6-Diamino-4-nitrotoluene	5.15464	0	4	77.6		4	77.6		0		25	72 - 112
3,5-Dinitroaniline	5.15464	0	4.35	84.4		4.23	82		2.89		25	75 - 116
TATB	2.57732	0	1.98	76.8		1.91	74		3.71		25	32 - 96
tris(o-cresyl) phosphate	5.15464	.0288	3.28	63		3.29	63.2		.314		25	30 - 80

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

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1296100

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861558

Sample Amount 1000 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0429022.wiff

Date Analyzed: 30-APR-13 02:18

Dilution Factor: 2

Concentration Units: ug/L

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

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1296100

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861558

Sample Amount 1000 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

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

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1296100

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861558

Sample Amount 1000 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS04250037.wiff

Date Analyzed: 25-APR-13 21:09

Dilution Factor: 2

Concentration Units: ug/L

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

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1296100

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861559

Sample Amount 1000 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0429023.wiff

Date Analyzed: 30-APR-13 02:53

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
13980-04-6	TNX	3.91		0.080	0.250
13980-04-6	*TNX*				
80251-29-2	DNX	4.34		0.080	0.250
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	4.59		0.082	0.250
88-72-2	*o-Nitrotoluene*				
2691-41-0	HMX	4.61		0.080	0.250
2691-41-0	*HMX*				
479-45-8	Tetryl	4.68		0.080	0.500
479-45-8	*Tetryl*				
98-95-3	Nitrobenzene	4.71		0.080	0.250
98-95-3	*Nitrobenzene*				
78-11-5	PETN	4.77		0.100	0.500
78-11-5	*PETN*				
5755-27-1	MNX	4.82		0.080	0.250
5755-27-1	*MNX*				
99-99-0	p-Nitrotoluene	4.84		0.150	0.500
99-99-0	*p-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.86		0.080	0.250
99-08-1	*m-Nitrotoluene*				
606-20-2	2,6-Dinitrotoluene	4.92		0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.02		0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	5.04		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1296100

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861559

Sample Amount 1000 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	5.04		0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	5.06		0.080	0.250
99-65-0	*m-Dinitrobenzene*				
121-14-2	2,4-Dinitrotoluene	5.31		0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	5.41		0.080	0.250
121-82-4	*RDX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.59		0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1296100

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861559

Sample Amount 1000 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS04250038.wiff

Date Analyzed: 25-APR-13 21:25

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.64		0.300	1.00
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	2.94		0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	3.77	Q	0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.08		0.300	1.00
618-87-1	*3,5-Dinitroaniline*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.18	Q	0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664(323928002MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861560

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0429025.wiff

Date Analyzed: 30-APR-13 04:03

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	2.77		0.0825	0.515
479-45-8	*Tetryl*				
13980-04-6	TNX	3.99		0.0825	0.258
13980-04-6	*TNX*				
99-99-0	p-Nitrotoluene	4.26		0.155	0.515
99-99-0	*p-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.4		0.0825	0.258
99-08-1	*m-Nitrotoluene*				
88-72-2	o-Nitrotoluene	4.46		0.0845	0.258
88-72-2	*o-Nitrotoluene*				
80251-29-2	DNX	4.47		0.0825	0.258
80251-29-2	*DNX*				
5755-27-1	MNX	4.53		0.0825	0.258
5755-27-1	*MNX*				
98-95-3	Nitrobenzene	4.58		0.0825	0.258
98-95-3	*Nitrobenzene*				
78-11-5	PETN	4.66		0.103	0.515
78-11-5	*PETN*				
99-35-4	1,3,5-Trinitrobenzene	4.72		0.0825	0.258
99-35-4	*1,3,5-Trinitrobenzene*				
118-96-7	2,4,6-Trinitrotoluene	4.82		0.0825	0.258
118-96-7	*2,4,6-Trinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.89		0.0825	0.258
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
606-20-2	2,6-Dinitrotoluene	4.9		0.0825	0.258
606-20-2	*2,6-Dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664(323928002MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861560

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-65-0	m-Dinitrobenzene	4.9		0.0825	0.258
99-65-0	*m-Dinitrobenzene*				
121-14-2	2,4-Dinitrotoluene	4.96		0.0825	0.258
121-14-2	*2,4-Dinitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.29		0.0825	0.258
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
2691-41-0	HMX	5.91		0.0825	0.258
2691-41-0	*HMX*				
121-82-4	RDX	6.68		0.0825	0.258
121-82-4	*RDX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664(323928002MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861560

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS04250040.wiff

Date Analyzed: 25-APR-13 21:59

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.98		0.309	1.03
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.28		0.309	1.03
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4	Q	0.515	2.58
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.31	Q	0.515	2.58
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.35		0.309	1.03
618-87-1	*3,5-Dinitroaniline*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664(323928002MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861561

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0429026.wiff

Date Analyzed: 30-APR-13 04:38

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8 *479-45-8*	Tetryl *Tetryl*	2.73		0.0825	0.515
13980-04-6 *13980-04-6*	TNX *TNX*	4.19		0.0825	0.258
5755-27-1 *5755-27-1*	MNX *MNX*	4.44		0.0825	0.258
99-99-0 *99-99-0*	p-Nitrotoluene *p-Nitrotoluene*	4.46		0.155	0.515
99-08-1 *99-08-1*	m-Nitrotoluene *m-Nitrotoluene*	4.48		0.0825	0.258
78-11-5 *78-11-5*	PETN *PETN*	4.54		0.103	0.515
88-72-2 *88-72-2*	o-Nitrotoluene *o-Nitrotoluene*	4.56		0.0845	0.258
80251-29-2 *80251-29-2*	DNX *DNX*	4.65		0.0825	0.258
606-20-2 *606-20-2*	2,6-Dinitrotoluene *2,6-Dinitrotoluene*	4.76		0.0825	0.258
118-96-7 *118-96-7*	2,4,6-Trinitrotoluene *2,4,6-Trinitrotoluene*	4.84		0.0825	0.258
98-95-3 *98-95-3*	Nitrobenzene *Nitrobenzene*	4.89		0.0825	0.258
35572-78-2 *35572-78-2*	2-Amino-4,6-dinitrotoluene *2-Amino-4,6-dinitrotoluene*	5.02		0.0825	0.258
99-35-4 *99-35-4*	1,3,5-Trinitrobenzene *1,3,5-Trinitrobenzene*	5.02		0.0825	0.258

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664(323928002MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861561

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-65-0	m-Dinitrobenzene	5.05		0.0825	0.258
99-65-0	*m-Dinitrobenzene*				
121-14-2	2,4-Dinitrotoluene	5.07		0.0825	0.258
121-14-2	*2,4-Dinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.15		0.0825	0.258
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	6.22		0.0825	0.258
2691-41-0	*HMX*				
121-82-4	RDX	6.91		0.0825	0.258
121-82-4	*RDX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29664(323928002MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-724

Matrix: WATER

GEL Sample ID: 1202861561

Sample Amount 970 mL

Date Received: 16-APR-13

Moisture:

Extraction Batch ID: 1296100

Extraction Type Sol Exchange

Date Extracted: 19-APR-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS04250041.wiff

Date Analyzed: 25-APR-13 22:15

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.91		0.309	1.03
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.29		0.309	1.03
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4	Q	0.515	2.58
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.21	Q	0.515	2.58
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.23		0.309	1.03
618-87-1	*3,5-Dinitroaniline*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 29-APR-13 14:02

GEL Data File: EXP0429001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 29-APR-13 14:37

GEL Data File: EXP0429002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 25-APR-13 11:06

GEL Data File: EXS04250001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
tris(o-cresyl) phosphate	0	3.53
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
3,4-Dinitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 25-APR-13 11:23

GEL Data File: EXS04250002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	1.92
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 2013-724

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

Analysis Date: 29-APR-13 18:43 **GEL Data File:** EXP0429009.wiff

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

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 2013-724

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

Analysis Date: 29-APR-13 19:53 **GEL Data File:** EXP0429011.wiff

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

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 2013-724

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

Analysis Date: 29-APR-13 23:58 **GEL Data File:** EXP0429018.wiff

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

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	.426
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 2013-724

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

Analysis Date: 30-APR-13 01:08 **GEL Data File:** EXP0429020.wiff

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

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC **GEL Job No(SDG):** 2013-724

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

Analysis Date: 30-APR-13 05:48 **GEL Data File:** EXP0429028.wiff

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

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 25-APR-13 13:37

GEL Data File: EXS04250010.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	10.4
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 25-APR-13 14:10

GEL Data File: EXS04250012.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.72
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC
GEL Job No(SDG): 2013-724
Lab Code: GEL
Lab Sample ID: XIBLK04
Analysis Date: 25-APR-13 17:48
GEL Data File: EXS04250025.wiff
Instrument ID: LCMSMS
Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	3.22
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC
GEL Job No(SDG): 2013-724
Lab Code: GEL
Lab Sample ID: XIBLK05
Analysis Date: 25-APR-13 18:38
GEL Data File: EXS04250028.wiff
Instrument ID: LCMSMS
Column: Phenomenex Ultracarb 5u ODS(20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 25-APR-13 20:35

GEL Data File: EXS04250035.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	5.1
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-724

Lab Code: GEL

Lab Sample ID: XIBLK07

Analysis Date: 25-APR-13 22:49

GEL Data File: EXS04250043.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	5.53
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-724

Sample Analysis

Sample ID	Client ID
323928003	CAPA-13-29675
1202863772	Method Blank (MB) **ICP**
1202863773	Laboratory Control Sample (LCS)
1202863776	324376001(WST36-13-30956L) Serial Dilution (SD)
1202863774	324376001(WST36-13-30956D) Sample Duplicate (DUP)
1202863775	324376001(WST36-13-30956S) Matrix Spike (MS)
1202863777	Method Blank (MB) **ICP-MS**
1202863778	Laboratory Control Sample (LCS)
1202863781	324205002(CAPA-13-29680L) Serial Dilution (SD)
1202863779	324205002(CAPA-13-29680D) Sample Duplicate (DUP)
1202863780	324205002(CAPA-13-29680S) Matrix Spike (MS)
1202860819	Method Blank (MB) **CVAA**
1202860820	Laboratory Control Sample (LCS)
1202860823	323996002(CAPA-13-29677L) Serial Dilution (SD)
1202860821	323996002(CAPA-13-29677D) Sample Duplicate (DUP)
1202860822	323996002(CAPA-13-29677S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1296991, 1296993, 1295806 and 1300880
Prep Batch :	1296990, 1296992 and 1295805
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# 25 and GL-GC-E-107 REV# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

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

System Configuration

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

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

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

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

Calibration Information

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

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

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

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

acceptance criteria for all applicable analytes with the exception of potassium. CCB04 (analyzed at 10:04 on 05/08/13) and CCB05 (analyzed at 10:29 on 05/08/13) recovered high for potassium; however, the bracketed QC samples contained potassium at levels 10x greater than PQL/RDL.

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: 324376001 (WST36-13-30956)-ICP, 324205002 (CAPA-13-29680)-ICP-MS and 323996002 (CAPA-13-29677)-CVAA.

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

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in

hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

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

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

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

Miscellaneous Information

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

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

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. 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:** 05/10/13

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: 2013-724 GEL Work Order: 323928

The Qualifiers in this report are defined as follows:

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

J Value is estimated

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

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

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

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the 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  05/10/13

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−724 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 323928003 **BASIS:** As Received **DATE COLLECTED** 12−APR−13

CLIENT ID: CAPA−13−29675 **LEVEL:** Low **DATE RECEIVED** 16−APR−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	BCD1	04/19/13 10:02	041913W1−5	1295806

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−724 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 323928003 **BASIS:** As Received **DATE COLLECTED** 12−APR−13

CLIENT ID: CAPA−13−29675 **LEVEL:** Low **DATE RECEIVED** 16−APR−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	210	ug/L		68	200	200	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−36−0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	05/07/13 20:50	130507−3	1296993
7440−38−2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	05/08/13 14:41	130508−4	1296993
7440−39−3	Barium	59.1	ug/L		1	5	5	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−41−7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−42−8	Boron	26	ug/L	J	15	50	50	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−43−9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	05/07/13 20:50	130507−3	1296993
7440−70−2	Calcium	19300	ug/L		50	200	200	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−47−3	Chromium	10	ug/L	U	2	10	10	1	MS	BAJ	05/08/13 14:41	130508−4	1296993
7440−48−4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−50−8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7439−89−6	Iron	140	ug/L		30	100	100	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7439−92−1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	05/07/13 20:50	130507−3	1296993
7439−95−4	Magnesium	5290	ug/L		110	300	300	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7439−96−5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7439−98−7	Molybdenum	1.43	ug/L		0.165	0.5	0.5	1	MS	BAJ	05/08/13 14:41	130508−4	1296993
7440−02−0	Nickel	0.645	ug/L	J	0.5	2	2	1	MS	BAJ	05/08/13 14:41	130508−4	1296993
7440−09−7	Potassium	3310	ug/L		50	150	150	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7782−49−2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	05/08/13 14:41	130508−4	1296993
7631−86−9	Silica	43400	ug/L		53	213	213	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−22−4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	05/07/13 20:50	130507−3	1296993
7440−23−5	Sodium	22700	ug/L		100	300	300	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−24−6	Strontium	117	ug/L		1	5	5	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−28−0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	05/07/13 20:50	130507−3	1296993
7440−31−5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	05/08/13 08:45	050813B−2	1296991
7440−61−1	Uranium	0.383	ug/L		0.067	0.2	0.2	1	MS	BAJ	05/08/13 14:41	130508−4	1296993
7440−62−2	Vanadium	3.14	ug/L	J	1	5	5	1	P	HSC	05/07/13 15:07	050713A−1	1296991
7440−66−6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/07/13 15:07	050713A−1	1296991

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−724 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 323928003 **BASIS:** As Received **DATE COLLECTED** 12−APR−13

CLIENT ID: CAPA−13−29675 **LEVEL:** Low **DATE RECEIVED** 16−APR−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	70	mg/L		0.453	1.24	1.24	1		JJ2	05/09/13 17:28		1300880

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1295806	1295805	EPA 245.1/245.2 Prep	20	mL	20	mL	04/18/13	AXS5
1296991	1296990	SW846 3005A	50	mL	50	mL	05/07/13	AXG2
1296993	1296992	SW846 3005A	50	mL	50	mL	05/07/13	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. 2013−724
Contract: ESHL00210
Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202860819								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2
1202863772								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	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
1202863777								
	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

***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. 2013−724 **Client ID** CAPA−13−29677S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 323996002 **Spike ID:** 1202860822

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.93		0.067	U	2	96.6		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−724 **Client ID** WST36−13−30956S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 324376001 **Spike ID:** 1202863775

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Tin	ug/L	75−125	844		322		500	104		P
Vanadium	ug/L	75−125	515		16.8	J	500	99.7		P
Zinc	ug/L	75−125	2250		1650		500	120		P
Strontium	ug/L	75−125	467		13.8	J	500	90.7		P
Aluminum	ug/L	75−125	5030		481	J	5000	90.9		P
Barium	ug/L	75−125	493		33.2		500	91.9		P
Beryllium	ug/L	75−125	528		5	U	500	106		P
Boron	ug/L		35400		32200		500	626	N/A	P
Calcium	ug/L	75−125	11600		6210		5000	107		P
Cobalt	ug/L	75−125	480		5	U	500	96		P
Copper	ug/L	75−125	708		203		500	101		P
Iron	ug/L	75−125	6480		1260		5000	104		P
Magnesium	ug/L	75−125	6930		1860		5000	102		P
Manganese	ug/L	75−125	530		44.9	J	500	97		P
Potassium	ug/L		2810000		2660000		5000	2870	N/A	P
Silica	ug/L		199000		171000		10700	262	N/A	P
Sodium	ug/L		575000		519000		5000	1110	N/A	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−724 **Client ID** CAPA−13−29680S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 324205002 **Spike ID:** 1202863780

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	53.4		1	U	50	106		MS
Arsenic	ug/L	75−125	48		1.7	U	50	94.5		MS
Cadmium	ug/L	75−125	50.1		0.11	U	50	100		MS
Chromium	ug/L	75−125	48.5		2	U	50	93.4		MS
Lead	ug/L	75−125	50.3		0.5	U	50	101		MS
Molybdenum	ug/L	75−125	50.8		1.27		50	99.1		MS
Nickel	ug/L	75−125	45.9		0.5	U	50	90.9		MS
Selenium	ug/L	75−125	51		1.5	U	50	101		MS
Silver	ug/L	75−125	51.9		0.2	U	50	104		MS
Thallium	ug/L	75−125	47.9		0.45	U	50	95.9		MS
Uranium	ug/L	75−125	48.8		0.306		50	96.9		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−724 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPA−13−29677D

Matrix: LIQUID **Level:** Low

Sample ID: 323996002 **Duplicate ID:** 1202860821 **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.: 2013−724 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** WST36−13−30956D

Matrix: LIQUID **Level:** Low

Sample ID: 324376001 **Duplicate ID:** 1202863774 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L	+/−1000	481	J	525	J	8.73		P
Barium	ug/L	+/−25	33.2		34.3		3.5		P
Beryllium	ug/L		5	U	5	U			P
Boron	ug/L	+/−20%	32200		35300		9.08		P
Calcium	ug/L	+/−20%	6210		6740		8.3		P
Cobalt	ug/L		5	U	5	U			P
Copper	ug/L	+/−50	203		228		11.4		P
Iron	ug/L	+/−500	1260		1440		13.5		P
Magnesium	ug/L	+/−1500	1860		1910		2.95		P
Manganese	ug/L	+/−50	44.9	J	49.2	J	9.04		P
Potassium	ug/L	+/−20%	2660000		2850000		6.6		P
Silica	ug/L	+/−20%	171000		192000		11.6		P
Sodium	ug/L	+/−20%	519000		570000		9.33		P
Strontium	ug/L	+/−25	13.8	J	16.3	J	16.5		P
Tin	ug/L	+/−20%	322		359		10.8		P
Vanadium	ug/L	+/−25	16.8	J	16.7	J	.41		P
Zinc	ug/L	+/−20%	1650		1810		8.76		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−724 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPA−13−29680D

Matrix: LIQUID **Level:** Low

Sample ID: 324205002 **Duplicate ID:** 1202863779 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L		2	U	2	U			MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.27		1.24		2.23		MS
Nickel	ug/L		0.5	U	0.5	U			MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.306		0.298		2.65		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−724

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202860820								
	Mercury	ug/L	2	2.02		101	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−724

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202863773								
	Aluminum	ug/L	5000	5050		101	80−120	P
	Barium	ug/L	500	484		96.9	80−120	P
	Beryllium	ug/L	500	481		96.3	80−120	P
	Boron	ug/L	500	478		95.6	80−120	P
	Cobalt	ug/L	500	483		96.7	80−120	P
	Copper	ug/L	500	486		97.1	80−120	P
	Iron	ug/L	5000	5050		101	80−120	P
	Magnesium	ug/L	5000	5080		102	80−120	P
	Manganese	ug/L	500	493		98.6	80−120	P
	Potassium	ug/L	5000	4930		98.6	80−120	P
	Silica	ug/L	10700	10000		93.6	80−120	P
	Sodium	ug/L	5000	4970		99.3	80−120	P
	Strontium	ug/L	500	497		99.4	80−120	P
	Tin	ug/L	500	494		98.8	80−120	P
	Vanadium	ug/L	500	497		99.3	80−120	P
	Zinc	ug/L	500	485		97	80−120	P
	Calcium	ug/L	5000	5000		100	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−724

Contract: ESHL00210

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

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202863778								
	Antimony	ug/L	50	52		104	80−120	MS
	Arsenic	ug/L	50	48.1		96.3	80−120	MS
	Cadmium	ug/L	50	50.6		101	80−120	MS
	Chromium	ug/L	50	49.5		99.1	80−120	MS
	Lead	ug/L	50	49.8		99.6	80−120	MS
	Molybdenum	ug/L	50	50.3		101	80−120	MS
	Nickel	ug/L	50	49.3		98.6	80−120	MS
	Selenium	ug/L	50	50.2		100	80−120	MS
	Silver	ug/L	50	51.7		103	80−120	MS
	Thallium	ug/L	50	47.9		95.8	80−120	MS
	Uranium	ug/L	50	51.5		103	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−724 **Client ID** CAPA−13−29677L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 323996002 **Serial Dilution ID:** 1202860823

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. 2013−724 **Client ID** WST36−13−30956L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 324376001 **Serial Dilution ID:** 1202863776

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	96.3	J	340	U	100			P
Barium	6.63		5.79	J	12.7			P
Beryllium	1	U	5	U				P
Boron	6450		6270		2.72		10	P
Calcium	1240		1210		2.57			P
Cobalt	1	U	5	U				P
Copper	40.6		46.2	J	13.6			P
Iron	252		245	J	2.66			P
Magnesium	372		550	U	100			P
Manganese	8.98	J	10	U	100			P
Potassium	53300		55900		4.89		10	P
Silica	34200		32600		4.49		10	P
Sodium	104000		106000		1.76		10	P
Strontium	2.77	J	5	U	100			P
Tin	64.5		57.6		10.7			P
Vanadium	3.35	J	5	U	100			P
Zinc	331		329		.452		10	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−724 **Client ID** CAPA−13−29680L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 324205002 **Serial Dilution ID:** 1202863781

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	1.27		1.54	J	21			MS
Nickel	.5	U	2.5	U				MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.306		.53	J	73.2			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-724

Method/Analysis Information

Product:	**Carbon, Total Organic**		
Analytical Batch:	1295844	**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
323928002	CAPA-13-29664
1202860911	Method Blank (MB)
1202860913	324097008(CAPA-13-29532) Sample Duplicate (DUP)
1202860915	324097008(CAPA-13-29532) Post Spike (PS)
1202860916	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: 324097008 (CAPA-13-29532).

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. 1202860913 (CAPA-13-29532).

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:	1296125	**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
323928003	CAPA-13-29675
1202861630	323928003(CAPA-13-29675) Sample Duplicate (DUP)
1202861632	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.

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

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: 323928003 (CAPA-13-29675).

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: 1295777 **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
323928003	CAPA-13-29675
1202860721	323928003(CAPA-13-29675) Sample Duplicate (DUP)
1202860723	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

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

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

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

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

Quality Control (QC) Information

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

Quality Control (QC) Designation

The following sample was selected for QC analysis: 323928003 (CAPA-13-29675).

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: 1202860721 (CAPA-13-29675) and 323928003 (CAPA-13-29675).

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: 1180319 1202860721 (CAPA-13-29675) and 323928003 (CAPA-13-29675).

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:	1295339	**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
323928003	CAPA-13-29675
1202859564	Method Blank (MB)
1202859565	323464001(WST08-13-29867) Sample Duplicate (DUP)
1202859566	323464001(WST08-13-29867) Post Spike (PS)
1202859567	Laboratory Control Sample (LCS)

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

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

Preparation/Analytical Method Verification

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

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

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

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 323464001 (WST08-13-29867).

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

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

Technical Information

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

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

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202859565 (WST08-13-29867), 1202859566 (WST08-13-29867) and 323928003 (CAPA-13-29675).

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

Miscellaneous Information

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202859565 (WST08-13-29867), 1202859566 (WST08-13-29867) and 323928003 (CAPA-13-29675).

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:	1295847	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1295846	**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
323928003	CAPA-13-29675
1202860917	Method Blank (MB)
1202860918	Laboratory Control Sample (LCS)
1202860921	323996002(CAPA-13-29677) Sample Duplicate (DUP)
1202860922	323996002(CAPA-13-29677) 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-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: 323996002 (CAPA-13-29677).

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
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202860921 (CAPA-13-29677).

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.

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:	1292106	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1292105	**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
323928002	CAPA-13-29664
1202851474	Method Blank (MB)
1202851475	Laboratory Control Sample (LCS)
1202851476	322799002(CAWA-13-28822) Sample Duplicate (DUP)
1202851477	322799002(CAWA-13-28822) 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-104 REV# 14.

Preparation/Analytical Method Verification

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

Calibration Information

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

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

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 322799002 (CAWA-13-28822).

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 samples were re-analyzed due to CCV failure: 1202851474 (MB), 1202851475 (LCS), 1202851476 (CAWA-13-28822) and 1202851477 (CAWA-13-28822).

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:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1295802	**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
323928003	CAPA-13-29675
1202860807	Method Blank (MB)
1202860811	323928003(CAPA-13-29675) Sample Duplicate (DUP)
1202860815	323928003(CAPA-13-29675) Post Spike (PS)
1202860816	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: 323928003 (CAPA-13-29675).

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

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

Technical Information

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

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

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

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

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

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1295857	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1295856	**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
323928003	CAPA-13-29675
1202860940	Method Blank (MB)
1202860941	323928003(CAPA-13-29675) Sample Duplicate (DUP)
1202860943	323928003(CAPA-13-29675) Matrix Spike (MS)
1202860945	Laboratory Control Sample (LCS)
1202863094	323995001(NP181-13-30518) Sample Duplicate (DUP)
1202863095	323995001(NP181-13-30518) Matrix Spike (MS)

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

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

Preparation/Analytical Method Verification

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

Calibration Information

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

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

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

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

Quality Control (QC) Information

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

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

Quality Control (QC) Designation
The following samples were selected for QC analysis: 323928003 (CAPA-13-29675) and 323995001 (NP181-13-30518).

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 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: 1202863094 (NP181-13-30518) and 1202863095 (NP181-13-30518).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202860940 (MB), 1202860941 (CAPA-13-29675), 1202860943 (CAPA-13-29675), 1202860945 (LCS) and 323928003 (CAPA-13-29675).

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:	1295772	**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
323928003	CAPA-13-29675
1202860707	Method Blank (MB)
1202860708	323928003(CAPA-13-29675) Sample Duplicate (DUP)
1202860712	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 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: 323928003 (CAPA-13-29675).

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.

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

Method/Analysis Information

Product:	**Alkalinity**		
Analytical Batch:	1295322	**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
323928003	CAPA-13-29675
1202859534	Laboratory Control Sample (LCS)
1202859537	323928003(CAPA-13-29675) Sample Duplicate (DUP)
1202859538	323928003(CAPA-13-29675) Matrix Spike (MS)

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

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

Preparation/Analytical Method Verification

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

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

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

Quality Control (QC) Designation
The following sample was selected for QC analysis: 323928003 (CAPA-13-29675).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

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

Technical Information

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

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

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

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

Miscellaneous Information

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

Additional Comments
Additional comments were not required for this SDG.

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

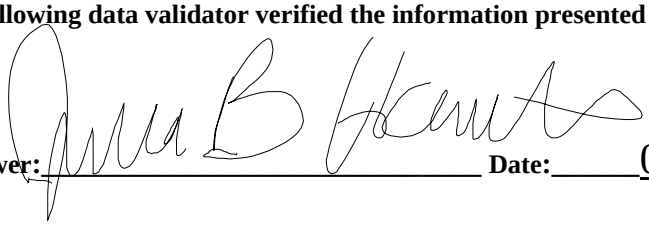
Certification Statement

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

Review Validation:

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

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



Reviewer:_____ **Date:** 05/10/13

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: 2013-724 GEL Work Order: 323928

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
B The target analyte was detected in the associated blank.
H Analytical holding time was exceeded
J Value is estimated
N Metals--The Matrix spike sample recovery is not within specified control limits
Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification

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: May 10, 2013

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

Client SDG: 2013-724

Client Sample ID:	CAPA-13-29664	Project:	ESHL00210
Sample ID:	323928002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	12-APR-13 10:30		
Receive Date:	16-APR-13		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		3.24	0.330	1.00	mg/L	1	TSM	04/22/13	1316	1295844	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.336	0.033	0.100	mg/L	1	KLP1	04/23/13	1352	1292106	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	04/22/13	1700	1292105

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

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Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-724

Client Sample ID: CAPA-13-29675
Sample ID: 323928003
Matrix: W
Collect Date: 12-APR-13 10:30
Receive Date: 16-APR-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		263	1.00	1.00	umhos/cm	1	TXT1	04/19/13	1450	1296125	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 8.90C	H	7.92	0.010	0.100	SU	1	LYG1	04/18/13	0756	1295777	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	VH1	04/18/13	2155	1295339	3
Fluoride		0.353	0.033	0.100	mg/L	1					
Sulfate		9.75	0.133	0.400	mg/L	1					
Chloride		19.0	0.670	2.00	mg/L	10	VH1	04/19/13	2138	1295339	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0546	0.017	0.050	mg/L	1	KLP1	04/22/13	1318	1295847	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.369	0.017	0.050	mg/L	1	KLP1	04/23/13	1449	1295802	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0571	0.017	0.050	mg/L	1	KLP1	04/23/13	1603	1295857	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		144	3.40	14.3	mg/L		LYG1	04/18/13	0947	1295772	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		78.8	0.725	1.00	mg/L		TXT1	04/16/13	1723	1295322	9
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	04/22/13	1205	1295846
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	04/22/13	1700	1295856

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Certificate of Analysis

Report Date: May 10, 2013

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-724
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPA-13-29675	Project:	ESHL00210
Sample ID:	323928003	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 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

Quality Control Summary

QC Summary

Report Date: May 10, 2013

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

Contact: **Keith Greene**

Workorder: **323928**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis												
Batch 1295844												
QC1202860913 324097008 DUP												
Total Organic Carbon Average		J	0.586	J	0.473	mg/L	21.3 ^		(+/-1.00)	TSM	04/22/13	18:05
QC1202860916 LCS												
Total Organic Carbon Average	10.0				10.1	mg/L		101	(85%-115%)		04/22/13	13:07
QC1202860911 MB												
Total Organic Carbon Average				U	ND	mg/L					04/22/13	12:58
QC1202860915 324097008 PS												
Total Organic Carbon Average	10.0	J	0.586		10.8	mg/L		102	(65%-120%)		04/22/13	18:25
Conductivity Analysis												
Batch 1296125												
QC1202861630 323928003 DUP												
Conductivity			263		263	umhos/cm	0.00		(0%-10%)	TXT1	04/19/13	14:51
QC1202861632 LCS												
Conductivity	1410				1460	umhos/cm		103	(95%-105%)		04/19/13	14:47
Electrode Analysis												
Batch 1295777												
QC1202860721 323928003 DUP												
pH		H	7.92	H	7.94	SU	0.252		(0%-10%)	LYG1	04/18/13	07:57
QC1202860723 LCS												
pH	7.00				7.03	SU		100	(99%-101%)		04/18/13	07:53
Ion Chromatography												
Batch 1295339												
QC1202859565 323464001 DUP												
Bromide		U	ND	U	ND	mg/L	N/A			VH1	04/18/13	20:52
Chloride			18.7		18.7	mg/L	0.192		(0%-20%)		04/19/13	20:35
Fluoride			1.62		1.56	mg/L	3.86		(0%-20%)		04/18/13	20:52
Sulfate			2.71		2.61	mg/L	3.86		(0%-20%)			
QC1202859567 LCS												
Bromide	2.50				2.55	mg/L		102	(90%-110%)		04/18/13	19:49
Chloride	10.0				9.53	mg/L		95.3	(90%-110%)			
Fluoride	5.00				4.88	mg/L		97.7	(90%-110%)			
Sulfate	20.0				19.4	mg/L		96.8	(90%-110%)			
QC1202859564 MB												
Bromide				U	ND	mg/L					04/18/13	19:18
Chloride				U	ND	mg/L						
Fluoride				U	ND	mg/L						
Sulfate				U	ND	mg/L						
QC1202859566 323464001 PS												
Bromide	2.50	U	ND		2.55	mg/L		102	(90%-110%)		04/18/13	21:24
Chloride	10.0		1.87		12.7	mg/L		108	(90%-110%)		04/19/13	21:07
Fluoride	5.00		1.62		6.60	mg/L		99.6	(90%-110%)		04/18/13	21:24

QC Summary

Workorder: 323928

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1295339										
Sulfate	20.0	2.71		22.5	mg/L		99	(90%-110%)		
Nutrient Analysis										
Batch 1292106										
QC1202851476 322799002 DUP										
Nitrogen, Total Kjeldahl		0.490		0.521	mg/L	6.13 ^		(+/-0.100)	KLP1	04/23/13 13:49
QC1202851475 LCS										
Nitrogen, Total Kjeldahl	1.00			1.01	mg/L		101	(90%-110%)		04/23/13 13:47
QC1202851474 MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					04/23/13 13:46
QC1202851477 322799002 MS										
Nitrogen, Total Kjeldahl	1.00	0.490		1.56	mg/L		107	(90%-110%)		04/23/13 13:49
Batch 1295802										
QC1202860811 323928003 DUP										
Nitrogen, Nitrate/Nitrite		0.369		0.369	mg/L	0.00		(0%-20%)	KLP1	04/23/13 14:51
QC1202860816 LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.09	mg/L		109	(90%-110%)		04/23/13 14:16
QC1202860807 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					04/23/13 14:15
QC1202860815 323928003 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.369		1.43	mg/L		106	(90%-110%)		04/23/13 14:52
Batch 1295847										
QC1202860921 323996002 DUP										
Nitrogen, Ammonia		0.0525		0.101	mg/L	63.2 ^		(+/-0.050)	KLP1	04/22/13 13:22
QC1202860918 LCS										
Nitrogen, Ammonia	1.00			1.03	mg/L		103	(90%-110%)		04/22/13 13:07
QC1202860917 MB										
Nitrogen, Ammonia			U	ND	mg/L					04/22/13 13:06
QC1202860922 323996002 MS										
Nitrogen, Ammonia	1.00	0.0525		1.10	mg/L		105	(90%-110%)		04/22/13 13:23
Batch 1295857										
QC1202860941 323928003 DUP										
Phosphorus, Total as P		0.0571		0.0508	mg/L	11.7 ^		(+/-0.050)	KLP1	04/23/13 16:04
QC1202863094 323995001 DUP										
Phosphorus, Total as P		3.70		3.57	mg/L	3.58		(0%-31%)		04/23/13 16:27
QC1202860945 LCS										
Phosphorus, Total as P	1.00			1.06	mg/L		106	(76%-120%)		04/23/13 16:02
QC1202860940 MB										
Phosphorus, Total as P			U	ND	mg/L					04/23/13 16:01
QC1202860943 323928003 MS										
Phosphorus, Total as P	1.00	0.0571		1.05	mg/L		99.3	(62%-139%)		04/23/13 16:05
QC1202863095 323995001 MS										
Phosphorus, Total as P	1.00	3.70		4.54	mg/L		84.5	(62%-139%)		04/23/13 16:28
Solids Analysis										
Batch 1295772										
QC1202860708 323928003 DUP										
Total Dissolved Solids		144		151	mg/L	4.83		(0%-10%)	LYG1	04/18/13 09:47
QC1202860712 LCS										

QC Summary

Workorder: **323928**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis										
Batch 1295772										
Total Dissolved Solids	300			294	mg/L		98.1	(95%-105%)		04/18/13 09:47
QC1202860707 MB										
Total Dissolved Solids			U	ND	mg/L				LYG1	04/18/13 09:47
Titration Analysis										
Batch 1295322										
QC1202859537 323928003 DUP										
Alkalinity, Total as CaCO3		78.8		78.3	mg/L	0.660		(0%-20%)	TXT1	04/16/13 17:23
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1202859534 LCS										
Alkalinity, Total as CaCO3	50.0			50.8	mg/L		102	(90%-110%)		04/16/13 11:40
QC1202859538 323928003 MS										
Alkalinity, Total as CaCO3	50.0	78.8		128	mg/L		98.5	(80%-120%)		04/16/13 17:23

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

**	Analyte is a Tracer compound
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	The target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Concentration of the target analyte exceeds the instrument calibration range
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
FA	Failed analysis.
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
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

QC Summary

Workorder: 323928

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

on nearest internal standard response factor

N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	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.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

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

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

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
23-APR-13	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ENRG, ESHL, GELC, NFSR,
Batch ID:	**Sample Numbers:**		
1295777	See Below		

Potentially affected work order(s)(SDG): 323922(PMA-13-006),323923(PMA-13-007),323928(2013-724),323994,323996(2013-728),324008,324010

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample received out of holding: 323922 001,003 323923 001,003 323928 003 323994 001,002 323996 002 324008 004 324010 004,007,010 QC 1202860721DUP,1202860722DUP	1. Sample received out of holding

Originator's Name:
Lisa Gregory 23-APR-13

Data Validator/Group Leader:
Thomas Lewis 23-APR-13

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-724
Work Order 323928

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1295225

Sample ID	Client ID
323928002	CAPA-13-29664
1202859230	Method Blank (MB)
1202859231	323928002(CAPA-13-29664) Sample Duplicate (DUP)
1202859232	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# 23.

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 1202859230 (MB) and 1202859232 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 323928002 (CAPA-13-29664). The QC was from ARSL work order 323928.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The 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
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:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1295226

Sample ID	Client ID
323928002	CAPA-13-29664
1202859233	Method Blank (MB)
1202859234	323928002(CAPA-13-29664) Sample Duplicate (DUP)
1202859235	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# 23.

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 1202859233 (MB) and 1202859235 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 323928002 (CAPA-13-29664). The QC was from ARSL work order 323928.

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
The batch was recounted due to suspected blank false positive. The recounts are being reported with the exception of samples 323928002(CAPA-13-29664) and 1202859233. Sample 323928002(CAPA-13-29664) was previously recounted due to peak shift and the third count is reported. Sample 1202859233 was previously recounted due to a suspected false positive and the third recount is reported.

Miscellaneous Information:

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

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

Additional Comments
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:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1295227

Sample ID	Client ID
323928002	CAPA-13-29664
1202859236	Method Blank (MB)
1202859237	323928002(CAPA-13-29664) Sample Duplicate (DUP)
1202859238	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# 23.

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 1202859236 (MB) and 1202859238 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 323928002 (CAPA-13-29664). The QC was from ARSL work order 323928.

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
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:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1296138

Sample ID	Client ID
323928002	CAPA-13-29664
1202861665	Method Blank (MB)
1202861666	324205001(CAPA-13-29669) Sample Duplicate (DUP)
1202861667	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 June 2012, July 2012, August 2012 and February 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: 324205001 (CAPA-13-29669). The QC was from ARSL work order 324205.

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

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to no valid peak.	Cesium-137	1202861666	CAPA-13-29669(324205001DUP)

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1295288

Sample ID	Client ID
323928002	CAPA-13-29664
1202859438	Method Blank (MB)
1202859439	323928002(CAPA-13-29664) Sample Duplicate (DUP)
1202859440	323928002(CAPA-13-29664) Matrix Spike (MS)
1202859441	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 1202859438 (MB) and 1202859441 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 323928002 (CAPA-13-29664). The QC was from ARSL work order 323928.

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 1202859438 (MB) was recounted due to a suspected blank false positive. The recount is reported.

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

Miscellaneous Information:

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

Additional Comments
The matrix spike, 1202859440 (CAPA-13-29664), 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:	1296612

Sample ID	Client ID
323928002	CAPA-13-29664
1202862848	Method Blank (MB)
1202862849	324095001(CAPA-13-20670) Sample Duplicate (DUP)
1202862850	324095001(CAPA-13-20670) Matrix Spike (MS)
1202862851	324095001(CAPA-13-20670) Matrix Spike Duplicate (MSD)
1202862852	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 1202862848 (MB) and 1202862852 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 324095001 (CAPA-13-20670). The QC was from ARSL work order 324095.

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

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

Technical Information:

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

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

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

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

Miscellaneous Information:

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

Additional Comments
The matrix spike and matrix spike duplicate, 1202862850 (CAPA-13-20670) and 1202862851 (CAPA-13-20670), 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: 2013-724 GEL Work Order: 323928

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.

UI Gamma Spectroscopy--Uncertain identification

Review/Validation

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

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

Signature: Heather McCarty **Name: Heather McCarty**

Date: 10 MAY 2013 **Title: Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: May 10, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29664
Sample ID: 323928002
Matrix: W
Collect Date: 12-APR-13
Receive Date: 16-APR-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00225	+/-0.00391	0.0394	+/-0.00391	0.050	pCi/L		HAKB	04/19/13	0900	1295225	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.0047	0.0366	+/-0.0047	0.050	pCi/L		HAKB	04/23/13	1054	1295226	2
Plutonium-239/240	U	0.0047	+/-0.0047	0.0357	+/-0.00471	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.130	+/-0.0212	0.0677	+/-0.0228	1.00	pCi/L		HAKB	04/19/13	0900	1295227	3
Uranium-235/236	U	0.00683	+/-0.00683	0.0415	+/-0.00684	1.00	pCi/L						
Uranium-238		0.102	+/-0.0177	0.038	+/-0.0189	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.46	+/-1.21	4.87	+/-1.25	8.00	pCi/L		MXR1	05/02/13	0745	1296138	4
Cobalt-60	U	1.90	+/-1.23	5.01	+/-1.31	8.00	pCi/L						
Neptunium-237	U	-1.7	+/-2.38	8.31	+/-2.42	10.0	pCi/L						
Potassium-40	U	-31.4	+/-15.9	54.4	+/-17.5	10.0	pCi/L						
Sodium-22	U	-0.741	+/-1.17	4.18	+/-1.19	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.243	+/-0.149	0.492	+/-0.150	0.500	pCi/L		BXF1	05/05/13	1433	1295288	5
WSP-GrossA/B "As Received"													
Beta		5.92	+/-0.948	2.50	+/-1.07	3.00	pCi/L		DYT1	05/07/13	1434	1296612	6
Alpha	U	1.10	+/-0.756	2.47	+/-0.762	3.00	pCi/L		DYT1	05/08/13	1133	1296612	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"	1295225	91.2	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1295226	94.0	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1295227	77.8	(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: May 10, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29664
Sample ID: 323928002

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	MDC	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"						1295288	90.1	(50%-105%)				

Notes:

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

Quality Control Data

QC Summary

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

Workorder: **323928**

Report Date: May 10, 2013

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1295225										
QC1202859231 323928002 DUP										
Americium-241	U	0.00225	U	0.00858	pCi/L	0.317		(0-1)	HAKB	04/19/1309:00
	Uncert:	+/-0.00391		+/-0.00607						
	TPU:	+/-0.00391		+/-0.00608						
**Americium-243 Tracer	2.62	2.39		2.51	pCi/L		96.1	(50%-105%)		
	Uncert:	+/-0.0765		+/-0.0747						
	TPU:	+/-0.131		+/-0.129						
QC1202859232 LCS										
Americium-241	1.41			1.49	pCi/L		105	(80%-120%)	HAKB	04/19/1309:00
	Uncert:			+/-0.0501						
	TPU:			+/-0.0775						
**Americium-243 Tracer	2.09			1.72	pCi/L		82	(50%-105%)		
	Uncert:			+/-0.0591						
	TPU:			+/-0.102						
QC1202859230 MB										
Americium-241			U	0.00921	pCi/L				HAKB	04/19/1309:00
	Uncert:			+/-0.00532						
	TPU:			+/-0.00533						
**Americium-243 Tracer	2.09			1.94	pCi/L		92.9	(50%-105%)		
	Uncert:			+/-0.0563						
	TPU:			+/-0.0991						
Batch 1295226										
QC1202859234 323928002 DUP										
Plutonium-238	U	0.00	U	0.00276	pCi/L	0.0941		(0-1)	HAKB	04/23/1310:54
	Uncert:	+/-0.0047		+/-0.00994						
	TPU:	+/-0.0047		+/-0.00994						
Plutonium-239/240	U	0.0047	U	-0.00276	pCi/L	0.287		(0-1)		
	Uncert:	+/-0.0047		+/-0.00827						
	TPU:	+/-0.00471		+/-0.00827						
**Plutonium-242 Tracer	2.44	2.29		1.94	pCi/L		79.5	(50%-105%)		
	Uncert:	+/-0.0758		+/-0.0822						
	TPU:	+/-0.127		+/-0.135						
QC1202859235 LCS										
Plutonium-238			U	0.00628	pCi/L			(80%-120%)	HAKB	04/23/1310:54
	Uncert:			+/-0.00468						
	TPU:			+/-0.00469						
Plutonium-239/240	1.97			2.02	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0653						
	TPU:			+/-0.109						
**Plutonium-242 Tracer	1.95			1.61	pCi/L		82.7	(50%-105%)		
	Uncert:			+/-0.0644						
	TPU:			+/-0.106						
QC1202859233 MB										

QC Summary

Workorder: **323928**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1295226										
Plutonium-238			U	0.00	pCi/L				HAKB	04/23/1310:54
	Uncert:			+/-0.00383						
	TPU:			+/-0.00383						
Plutonium-239/240			U	-0.0135	pCi/L					
	Uncert:			+/-0.0124						
	TPU:			+/-0.0124						
**Plutonium-242 Tracer	1.95			1.27	pCi/L		65	(50%-105%)		
	Uncert:			+/-0.0731						
	TPU:			+/-0.117						
Batch 1295227										
QC1202859237 323928002 DUP										
Uranium-234		0.130		0.173	pCi/L	0.444		(0-1)	HAKB	04/19/1309:00
	Uncert:	+/-0.0212		+/-0.0229						
	TPU:	+/-0.0228		+/-0.0255						
Uranium-235/236	U	0.00683	U	0.010	pCi/L	0.101		(0-1)		
	Uncert:	+/-0.00683		+/-0.00882						
	TPU:	+/-0.00684		+/-0.00884						
Uranium-238		0.102		0.135	pCi/L	0.400		(0-1)		
	Uncert:	+/-0.0177		+/-0.0202						
	TPU:	+/-0.0189		+/-0.022						
**Uranium-232 Tracer	2.70	2.10		2.12	pCi/L		78.7	(50%-105%)		
	Uncert:	+/-0.0866		+/-0.0855						
	TPU:	+/-0.195		+/-0.194						
QC1202859238 LCS										
Uranium-234				2.68	pCi/L				HAKB	04/19/1309:00
	Uncert:			+/-0.0786						
	TPU:			+/-0.192						
Uranium-235/236				0.0961	pCi/L					
	Uncert:			+/-0.0174						
	TPU:			+/-0.0185						
Uranium-238	2.70			2.57	pCi/L		95	(80%-120%)		
	Uncert:			+/-0.0767						
	TPU:			+/-0.184						
**Uranium-232 Tracer	2.16			1.64	pCi/L		76.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.157						
QC1202859236 MB										
Uranium-234			U	0.00793	pCi/L				HAKB	04/19/1309:00
	Uncert:			+/-0.00627						
	TPU:			+/-0.00629						
Uranium-235/236			U	0.00245	pCi/L					
	Uncert:			+/-0.00548						
	TPU:			+/-0.00548						
Uranium-238			U	0.00594	pCi/L					
	Uncert:			+/-0.00594						
	TPU:			+/-0.00596						
**Uranium-232 Tracer	2.16			1.88	pCi/L		87.2	(50%-105%)		
	Uncert:			+/-0.0656						

QC Summary

Workorder: **323928**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1295227										
	TPU:			+/-0.153						
Rad Gamma Spec										
Batch 1296138										
QC1202861666 324205001 DUP										
Cesium-137	UI	8.74	UI	5.79	pCi/L	0.354		(0-1)	MXR1	05/02/1312:21
	Uncert:	+/-2.36		+/-1.75						
	TPU:	+/-2.40		+/-1.77						
Cobalt-60	U	-0.869	U	-2.77	pCi/L	0.301		(0-1)		
	Uncert:	+/-1.67		+/-1.34						
	TPU:	+/-1.68		+/-1.49						
Neptunium-237	U	-2.51	U	-2.83	pCi/L	0.0276		(0-1)		
	Uncert:	+/-2.77		+/-2.85						
	TPU:	+/-2.83		+/-2.93						
Potassium-40	U	27.3	U	-32.5	pCi/L	0.876		(0-1)		
	Uncert:	+/-17.0		+/-14.1						
	TPU:	+/-18.1		+/-16.0						
Sodium-22	U	2.94	U	-0.389	pCi/L	0.558		(0-1)		
	Uncert:	+/-1.43		+/-1.39						
	TPU:	+/-1.59		+/-1.39						
QC1202861667 LCS										
Americium-241	2780			2860	pCi/L		103	(80%-120%)	MXR1	05/02/1311:55
	Uncert:			+/-183						
	TPU:			+/-257						
Cesium-137	6030			6090	pCi/L		101	(80%-120%)		
	Uncert:			+/-57.4						
	TPU:			+/-267						
Cobalt-60	5330			5300	pCi/L		99.3	(80%-120%)		
	Uncert:			+/-60.3						
	TPU:			+/-228						
Neptunium-237			U	44.7	pCi/L					
	Uncert:			+/-31.6						
	TPU:			+/-33.3						
Potassium-40			U	-13.5	pCi/L					
	Uncert:			+/-45.4						
	TPU:			+/-45.5						
Sodium-22			U	10.7	pCi/L					
	Uncert:			+/-7.22						
	TPU:			+/-7.64						
QC1202861665 MB										
Cesium-137			U	0.124	pCi/L				MXR1	05/02/1310:08
	Uncert:			+/-1.55						
	TPU:			+/-1.55						
Cobalt-60			U	2.12	pCi/L					
	Uncert:			+/-1.46						
	TPU:			+/-1.54						
Neptunium-237			U	-1.31	pCi/L					
	Uncert:			+/-2.51						
	TPU:			+/-2.53						

QC Summary

Workorder: **323928**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1296138										
Potassium-40			U	-12.3	pCi/L					
Uncert:				+/-19.1						
TPU:				+/-19.3						
Sodium-22			U	-0.971	pCi/L					
Uncert:				+/-1.27						
TPU:				+/-1.29						
Rad Gas Flow										
Batch 1295288										
QC1202859439 323928002 DUP										
Strontium-90	U	0.243	U	-0.28	pCi/L	0.928		(0-1)	BXF1	05/05/1314:32
Uncert:		+/-0.149		+/-0.132						
TPU:		+/-0.150		+/-0.132						
**Strontium Carrier	8.55	7.70		7.40	mg		86.5	(50%-105%)		
QC1202859441 LCS										
Strontium-90	24.3			26.6	pCi/L		110	(80%-120%)	BXF1	05/05/1314:26
Uncert:				+/-0.582						
TPU:				+/-2.19						
**Strontium Carrier	8.55			7.00	mg		81.9	(50%-105%)		
QC1202859438 MB										
Strontium-90			U	0.0517	pCi/L				BXF1	05/06/1311:17
Uncert:				+/-0.0576						
TPU:				+/-0.0578						
**Strontium Carrier	8.55			7.30	mg		85.4	(50%-105%)		
QC1202859440 323928002 MS										
Strontium-90	243 U	0.243		266	pCi/L		109	(75%-125%)	BXF1	05/05/1314:32
Uncert:		+/-0.149		+/-5.54						
TPU:		+/-0.150		+/-21.8						
**Strontium Carrier	8.55	7.70		7.50	mg		87.7	(50%-105%)		
Batch 1296612										
QC1202862849 324095001 DUP										
Alpha	U	0.961	U	-0.277	pCi/L	0.533		(0-1)	DYT1	05/08/1311:33
Uncert:		+/-0.699		+/-0.457						
TPU:		+/-0.703		+/-0.458						
Beta	U	0.790	U	1.91	pCi/L	0.313		(0-1)		05/07/1314:38
Uncert:		+/-0.882		+/-0.891						
TPU:		+/-0.885		+/-0.908						
QC1202862852 LCS										
Alpha	12.3			12.6	pCi/L		102	(80%-120%)	DYT1	05/08/1311:33
Uncert:				+/-0.636						
TPU:				+/-1.24						
Beta	48.6			53.3	pCi/L		110	(80%-120%)		05/07/1313:33
Uncert:				+/-0.943						
TPU:				+/-4.54						
QC1202862848 MB										
Alpha			U	0.0364	pCi/L				DYT1	05/08/1311:33
Uncert:				+/-0.0807						
TPU:				+/-0.0808						
Beta			U	-0.00605	pCi/L					05/07/1314:37

QC Summary

Workorder: **323928**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1296612										
	Uncert:			+/-0.113						
	TPU:			+/-0.113						
QC1202862850 324095001 MS										
Alpha	494 U	0.961		552	pCi/L		112	(75%-125%)	DYT1	05/08/1311:33
	Uncert:	+/-0.699		+/-26.2						
	TPU:	+/-0.703		+/-54.5						
Beta	1940 U	0.790		2150	pCi/L		110	(75%-125%)		05/07/1314:38
	Uncert:	+/-0.882		+/-38.0						
	TPU:	+/-0.885		+/-182						
QC1202862851 324095001 MSD										
Alpha	494 U	0.961		462	pCi/L	0.450	93.5	(0-1)	DYT1	05/08/1311:33
	Uncert:	+/-0.699		+/-24.7						
	TPU:	+/-0.703		+/-46.2						
Beta	1940 U	0.790		2070	pCi/L	0.109	106	(0-1)		05/07/1313:33
	Uncert:	+/-0.882		+/-37.5						
	TPU:	+/-0.885		+/-176						

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

**	Analyte is a Tracer compound
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	The target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Concentration of the target analyte exceeds the instrument calibration range
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
FA	Failed analysis.
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
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

QC Summary

Workorder: **323928**

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

N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	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.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

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

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