

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #:
2013-778

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[illegible]

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

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

SAMPLE ID: CAPA-13-29650 WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID: R-17 S1		↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FB	↓
PORT: P1A			SAMPLE USAGE:	QC	

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

SAMPLE COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

Dissolved Oxygen 1.2 mg/L Oxidation-Reduction Potential 1.2 MV pH 7.2 SU

Specific Conductance 1.2 S/cm Temperature 1.2 deg C Turbidity 1.2 NTU

COLLECTED BY (PRINT)

W. Shaw

RELINQUISHED BY (Printed Name) William Shaw (Signature)	Date/Time 4/25/2013 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) Sheri Sherwood	Date/Time 4/25/13 1615
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29651 WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-17 S1		↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT: P1A			SAMPLE USAGE:	QC	

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

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) M. Shendo

RELINQUISHED BY (Printed Name) <u>M. Shendo</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/2013</u> <u>1615</u>	RECEIVED BY (Printed Name) <u>S. Shendo</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/13</u> <u>1615</u>
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 Surveillance
Monitoring Group) MY2013 Q3
Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29652 WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-17 S1		↓	FIELD PREP:	F	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT: PIA			SAMPLE USAGE:	QC	

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

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Oxidation-Reduction Potential NA MV pH NA SU
Specific Conductance NA uS/cm Temperature NA deg C Turbidity NA NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) <u>William Shaw</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/2013</u> <u>1615</u>	RECEIVED BY (Printed Name) <u>Shen Shenwood</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/13</u> <u>1615</u>
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29653 WORK ORDER:

	<u>AS</u> <u>PLANNED</u>	<u>AS COLLECTED</u>		<u>AS</u> <u>PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1540	MEDIA:	UA	N
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID: R-17 S1		↓	FIELD PREP:	UF	OK
LOCATION TYPE: SUP		↓	FIELD QC TYPE: PEB		↓
PORT: P1A		↓	SAMPLE USAGE: QC		↓

PRIORITY	ORDER	CONTAINER	# PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2 HCL	Y	NA
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	2 ICE <i>vs 40x200s</i>	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	2 ICE	↓	↓
↓	WSP-CL04	250 ML POLY	1 ICE	↓	↓
↓	WSP-GENINORG	1 LITER POLY	1 ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1 NONE	↓	↓
↓	WSP-H-3	250 ML AMBER GLASS	1 ICE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2 ICE <i>vs 40x200s</i>	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1 NONE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1 HNO3	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4164

EVENT NAME:

Pajarito (General Surveillance
Monitoring Group) MY2013 Q3
Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29653

WORK ORDER:

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	Y	NA
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

as 4/25/13
NA OF from TA-59 basement laboratory
18.2 mV-cm

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L
Specific Conductance NA uS/cm

Oxidation-Reduction Potential NA MV
Temperature NA deg C

pH NA SU
Turbidity NA NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) William Law (Signature) <u>W Law</u>	Date/Time 4/25/2013 1615	RECEIVED BY (Printed Name) Sherrin Sherwood (Signature) <u>Sherrin Sherwood</u>	Date/Time 4/25/13 1615
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29660 WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID: R-17 S1		↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT: P1A			SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 45	Y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) <u>William Shaw</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/13</u> <u>1615</u>	RECEIVED BY (Printed Name) <u>G. Sherwood</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/13</u> <u>1615</u>
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29661 WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1418	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID: R-17 S2		↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT: P2A			SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	# PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2 HCL 425/13	Y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) William Shaw (Signature) <u>[Signature]</u>	Date/Time 4/25/2013 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) <u>[Signature]</u>	Date/Time 4/25/2013 1415
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 Surveillance Monitoring Group) MY2013 Q3
 SAMPLE ID: CAPA-13-29667 WORK ORDER: NA Sampling Event_Pajarito Canyon

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-17 S1		↓	FIELD PREP:	UF	OK
LOCATION TYPE: MON		↓	FIELD QC TYPE: REG		↓
PORT: P1A			SAMPLE USAGE: INV		↓

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

SAMPLE COMMENTS:

Sampled within 50' of diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 7.39 mg/L Oxidation-Reduction Potential 140.2 MV pH 7.88 SU
 Specific Conductance 127 uS/cm Temperature 20.52 deg C Turbidity 127 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) <u>William Shaw</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/2013</u> <u>1615</u>	RECEIVED BY (Printed Name) <u>J. Sherwood</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/25/13</u> <u>1615</u>
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29668 WORK ORDER: NA

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1418	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-17 S2		↓	FIELD PREP:	UF	OK
LOCATION TYPE: MON		↓	FIELD QC TYPE: REG		↓
PORT: P2A			SAMPLE USAGE: INV		

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

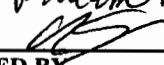
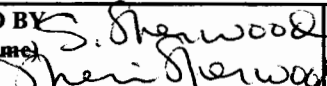
LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.61 mg/L Oxidation-Reduction Potential 126.8 MV pH 7.93 SU

Specific Conductance 117 uS/cm Temperature 20.94 deg C Turbidity 0.6 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) William Shaw (Signature) 	Date/Time 4/25/2013 1615	RECEIVED BY (Printed Name) S. Sherwood (Signature) 	Date/Time 4/25/13 1615
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29678 WORK ORDER: NA

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-17 S1		↓	FIELD PREP:	F	OK
LOCATION TYPE: MON		↓	FIELD QC TYPE: REG		↓
PORT: P1A			SAMPLE USAGE: INV		↓

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

SAMPLE COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

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

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

COLLECTED BY (PRINT) M. Shendo

RELINQUISHED BY (Printed Name) William Shaw (Signature) <u>William Shaw</u>	Date/Time 4/25/2013 (615)	RECEIVED BY (Printed Name) B. Sherwood (Signature) <u>B. Sherwood</u>	Date/Time 4/25/2013 (615)
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 Surveillance Monitoring Group) MY2013 Q3 Sampling Event_Pajarito Canyon

SAMPLE ID: CAPA-13-29679 WORK ORDER: NA

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED (MM/DD/YYYY):		04/25/2013	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1418	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-17 S2		↓	FIELD PREP:	F	OK
LOCATION TYPE: MON		↓	FIELD QC TYPE: REG		↓
PORT: P2A			SAMPLE USAGE: INV		

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

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Oxidation-Reduction Potential NA MV pH NA SU
 Specific Conductance NA uS/cm Temperature NA deg C Turbidity NA NTU

COLLECTED BY (PRINT) M. Shendo

RELINQUISHED BY (Printed Name) William Shaw (Signature) <u>William Shaw</u>	Date/Time 4/25/13 1615	RECEIVED BY (Printed Name) Sheri Sherwood (Signature) <u>Sheri Sherwood</u>	Date/Time 4/25/13 1615
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. 2013-778

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
	324671 EPA:120.1	2	1			
	324671 EPA:150.1	2	1			
	324671 EPA:160.1	2	1			
	324671 EPA:245.2	2	1			
	324671 EPA:300.0	2	1			
	324671 EPA:310.1	2	1			
	324671 EPA:350.1	2	1			
	324671 EPA:351.2	2	1			
	324671 EPA:353.2	2	1			
	324671 EPA:365.4	2	1			
	324671 EPA:900	2	1			
	324671 EPA:901.1	2	1			
	324671 EPA:905.0	2	1			
	324671 EPA:906.0					
	324671 HASL-300:AM-241	2	1			
	324671 HASL-300:ISOPU	2	1			
	324671 HASL-300:ISOU	2	1			
	324671 SM:A2340B	2	1			
	324671 SW-846:6010B	2	1			
	324671 SW-846:6020	2	1			
	324671 SW-846:6850	2	1			
	324671 SW-846:8260B	2	1		2	1
	324671 SW-846:8270C	2	1			1
	324671 SW-846:8321A_MOD	2	1			
	324671 SW-846:9060	2	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
	324671 EPA:120.1	1298042	1298042	2	1						
	324671 EPA:150.1	1298053	1298053	2	1						
	324671 EPA:160.1	1298014	1298014	2	1					1	
	324671 EPA:245.2	1301314	1301303	2	1					1	1
	324671 EPA:300.0	1297394	1297394	2	1					1	
	324671 EPA:310.1	1300354	1300354	2	1					1	1
	324671 EPA:350.1	1298091	1298090	2	1					1	1
	324671 EPA:351.2	1299346	1299345	2	1					1	1
	324671 EPA:353.2	1298397	1298397	2	1					1	
	324671 EPA:365.4	1299313	1299311	2	1					1	1
	324671 EPA:900	1298712	1298712	2	1					1	1
	324671 EPA:901.1	1298376	1298376	2	1					1	
	324671 EPA:905.0	1298225	1298225	2	1					1	1
	324671 EPA:906.0	1298682	1298682							1	1
	324671 HASL-300:AM-241	1298061	1298061	2	1					1	
	324671 HASL-300:ISOPU	1302191	1302191	2	1					1	
	324671 HASL-300:ISOU	1298064	1298064	2	1					1	
	324671 SM:A2340B	1303342	1303342	2	1						
	324671 SW-846:6010B	1298549	1298546	2	1					1	1

[illegible]

324671	SW-846:6020	1298551	1298550	2	1			1	1	
324671	SW-846:6850	1298898	1298897	2	1			1	1	1
324671	SW-846:8260B	1300014	1300014	2	1	2	1	1		
324671	SW-846:8270C	1298462	1298461	2	1		1	1	1	1
324671	SW-846:8321A_MOD	1298905	1298902	2	1			1	1	1
324671	SW-846:9060	1298028	1298028	2	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-13-29652	324671010	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPA-13-29673	1202866186	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202866187	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAPA-13-30298	1202866216	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202866217	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29679	1202866184	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202866123	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202866120	MB	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29652	324671010	FD	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29678	1202874793	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29678	1202874794	MS	0	0	1	0
EPA:245.2	INORGANIC	CAPA-13-29678	324671009	REG	1	0	0	0
EPA:245.2	INORGANIC	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202874792	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202874791	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPA-13-29673	1202864647	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202864649	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202864646	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29652	1202872270	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29652	1202872271	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202872267	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202872266	MB	2	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29673	1202866340	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29673	1202866342	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	1	0	0	0

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EPA:350.1	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202866344	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202866339	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29651	324671007	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29667	1202869533	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29667	1202869534	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29667	324671006	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAPA-13-29668	324671008	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202869532	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202869531	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29673	1202867216	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202867220	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202867215	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29652	324671010	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29678	1202869467	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29678	1202869468	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29678	324671009	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAPA-13-29679	324671011	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202869466	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202869465	MB	1	0	0	0
EPA:900	RAD	CAPA-13-29651	324671007	FD	2	0	0	0
EPA:900	RAD	CAPA-13-29653	324671012	PEB	2	0	0	0
EPA:900	RAD	CAPA-13-29667	1202868031	DUP	2	0	0	0
EPA:900	RAD	CAPA-13-29667	1202868032	MS	0	0	2	0
EPA:900	RAD	CAPA-13-29667	1202868033	MSD	0	0	2	0
EPA:900	RAD	CAPA-13-29667	324671006	REG	2	0	0	0
EPA:900	RAD	CAPA-13-29668	324671008	REG	2	0	0	0
EPA:900	RAD	LCS	1202868034	LCS	0	0	2	0
EPA:900	RAD	MB	1202868030	MB	2	0	0	0
EPA:901.1	RAD	CAPA-13-29651	324671007	FD	5	0	0	0
EPA:901.1	RAD	CAPA-13-29653	324671012	PEB	5	0	0	0
EPA:901.1	RAD	CAPA-13-29667	1202867155	DUP	5	0	0	0
EPA:901.1	RAD	CAPA-13-29667	324671006	REG	5	0	0	0
EPA:901.1	RAD	CAPA-13-29668	324671008	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202867156	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202867154	MB	5	0	0	0
EPA:905.0	RAD	CAPA-13-29651	324671007	FD	1	0	0	0
EPA:905.0	RAD	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:905.0	RAD	CAPA-13-29667	1202866767	DUP	1	0	0	0
EPA:905.0	RAD	CAPA-13-29667	1202866768	MS	0	0	1	0
EPA:905.0	RAD	CAPA-13-29667	324671006	REG	1	0	0	0
EPA:905.0	RAD	CAPA-13-29668	324671008	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202866769	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202866766	MB	1	0	0	0
EPA:906.0	RAD	CAPA-13-29653	1202867933	DUP	1	0	0	0
EPA:906.0	RAD	CAPA-13-29653	1202867934	MS	0	0	1	0
EPA:906.0	RAD	CAPA-13-29653	324671012	PEB	1	0	0	0
EPA:906.0	RAD	LCS	1202867935	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202867932	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-30558	1202866241	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAPA-13-29651	324671007	FD	1	0	0	0

HASL-300:AM-241	RAD	CAPA-13-29653	324671012	PEB	1	0	0	0
HASL-300:AM-241	RAD	CAPA-13-29667	324671006	REG	1	0	0	0
HASL-300:AM-241	RAD	CAPA-13-29668	324671008	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202866242	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202866240	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-30558	1202877007	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAPA-13-29651	324671007	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAPA-13-29653	324671012	PEB	2	0	0	0
HASL-300:ISOPU	RAD	CAPA-13-29667	324671006	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAPA-13-29668	324671008	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202877008	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202877006	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-30558	1202866249	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAPA-13-29651	324671007	FD	3	0	0	0
HASL-300:ISOU	RAD	CAPA-13-29653	324671012	PEB	3	0	0	0
HASL-300:ISOU	RAD	CAPA-13-29667	324671006	REG	3	0	0	0
HASL-300:ISOU	RAD	CAPA-13-29668	324671008	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202866250	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202866248	MB	3	0	0	0
SM-A2340B	INORGANIC	CAPA-13-29652	324671010	FD	1	0	0	0
SM-A2340B	INORGANIC	CAPA-13-29653	324671012	PEB	1	0	0	0
SM-A2340B	INORGANIC	CAPA-13-29678	324671009	REG	1	0	0	0
SM-A2340B	INORGANIC	CAPA-13-29679	324671011	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-29652	324671010	FD	17	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-29653	324671012	PEB	17	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-29678	1202867559	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-29678	1202867560	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAPA-13-29678	324671009	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-29679	324671011	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202867558	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202867557	MB	17	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29652	324671010	FD	11	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29653	324671012	PEB	11	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29678	1202867564	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29678	1202867565	MS	0	0	11	0
SW-846:6020	INORGANIC	CAPA-13-29678	324671009	REG	11	0	0	0
SW-846:6020	INORGANIC	CAPA-13-29679	324671011	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202867563	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202867562	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29652	324671010	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29653	324671012	PEB	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29678	1202868454	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29678	1202868455	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29678	324671009	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAPA-13-29679	324671011	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202868453	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202868452	MB	1	0	0	0
SW-846:8260B	VOC	CAPA-13-29650	324671002	FB	80	3	0	0
SW-846:8260B	VOC	CAPA-13-29651	324671003	FD	80	3	0	0

SW-846:82608	VOC	CAPA-13-29653	324671004	PEB	80	3	0	0
SW-846:82608	VOC	CAPA-13-29660	324671013	FTB	80	3	0	0
SW-846:82608	VOC	CAPA-13-29661	324671014	FTB	80	3	0	0
SW-846:82608	VOC	CAPA-13-29667	324671001	REG	80	3	0	0
SW-846:82608	VOC	CAPA-13-29668	324671005	REG	80	3	0	0
SW-846:82608	VOC	LCS	1202871408	LCS	0	3	70	0
SW-846:82608	VOC	LCS	1202871409	LCS	0	3	10	0
SW-846:82608	VOC	MB	1202871405	MB	80	3	0	0
SW-846:8270C	SVOC	CAPA-13-29650	324671002	FB	80	6	0	0
SW-846:8270C	SVOC	CAPA-13-29651	324671003	FD	80	6	0	0
SW-846:8270C	SVOC	CAPA-13-29653	324671004	PEB	80	6	0	0
SW-846:8270C	SVOC	CAPA-13-29667	1202867363	MS	0	6	76	0
SW-846:8270C	SVOC	CAPA-13-29667	1202867364	MSD	0	6	76	0
SW-846:8270C	SVOC	CAPA-13-29667	324671001	REG	80	6	0	0
SW-846:8270C	SVOC	CAPA-13-29668	324671005	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202867362	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202867361	MB	80	6	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29651	324671007	FD	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29653	324671012	PEB	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29667	1202868472	MS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29667	1202868473	MSD	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29667	324671006	REG	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAPA-13-29668	324671008	REG	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	LCS	1202868471	LCS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	MB	1202868470	MB	23	2	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29651	324671007	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29653	324671012	PEB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29662	1202866145	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29667	324671006	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-13-29668	324671008	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202866149	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202866144	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field	Lab	Type Of	Analytical	Sample	Parameter	Lab	Lab		Lab
Sample ID	Sample ID	Blank	Method	Matrix	Name	Result	Qualifier	Units	Detection Limit
MB	1202866120	METHOD BLANK	EPA:160.1	W	Total Dissolved Solids	5.71 J		mg/L	14.3
MB	1202867562	METHOD BLANK	SW-846:6020	W	Molybdenum	0.188 J		ug/L	0.5

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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	Matrix	Matrix	Analytical	Parameter	Analysis	Analysis	Sample	MS %	MSD %	Upper	Lower
Sample ID	Spike ID	Spike Dup ID	Method	Name	Lot ID	Date	Matrix	Recvry	Recvry	Limit	Limit
CAPA-13-29667	1202867363	1202867364	SW-846:8270C	Benzidine	1298461	5/1/2013	W	151	134	117	10
CAPA-13-29667	1202867363	1202867364	SW-846:8270C	Nitroaniline[4-]	1298461	5/1/2013	W	160	142	133	25
CAPA-13-29667	1202867363	1202867364	SW-846:8270C	Nitrophenol[4-]	1298461	5/1/2013	W	79	71	71	16

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

LCS	LCSD	Analytical	Parameter	Lab	Analysis	Sample	LCS	LCSD	Upper	Lower	Lower Reject
Sample ID	Sample ID	Method	Name	Lot ID	Date	Matrix	Recovery	Recovery	Limit	Limit	Limit
1202867362		SW-846:8270C	Nitroaniline[4-]	1298461	5/1/2013	W	155		133	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29651	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N

Rejection	RPD	RPD
Limit	Limit	Limit
10	12	30
10	12	30
10	11	30

Upper Reject	RPD	RPD
Limit	Limit	Limit

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
0.00295	pCi/L	0.00295	pCi/L	0.0571	0.00511	W	4/25/2013		1298061	VAL	Y
0.835	pCi/L	0.835	pCi/L	6.03	1.63	W	4/25/2013		1298376	VAL	Y
-1.02	pCi/L	-1.02	pCi/L	4.91	1.32	W	4/25/2013		1298376	VAL	Y
2.33	pCi/L	2.33	pCi/L	2.84	0.91	W	4/25/2013		1298712	VAL	Y
1.52	pCi/L	1.52	pCi/L	11	2.99	W	4/25/2013		1298376	VAL	Y
0	pCi/L	0	pCi/L	0.0397	0.00378	W	4/25/2013		1302191	VAL	Y
0	pCi/L	0	pCi/L	0.0479	0.00534	W	4/25/2013		1302191	VAL	Y
33.8	pCi/L	33.8	pCi/L	71.5	15.8	W	4/25/2013		1298376	VAL	Y
0.427	pCi/L	0.427	pCi/L	5.29	1.32	W	4/25/2013		1298376	VAL	Y
-0.327	pCi/L	-0.327	pCi/L	0.496	0.118	W	4/25/2013		1298225	VAL	Y
0.00405	pCi/L	0.00405	pCi/L	0.0349	0.00701	W	4/25/2013		1298064	VAL	Y
0.00278	pCi/L	0.00278	pCi/L	0.0539	0.00482	W	4/25/2013		1298061	VAL	Y
0.0886	pCi/L	0.0886	pCi/L	5.83	1.69	W	4/25/2013		1298376	VAL	Y

R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	EPA:906.0	Tritium	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	HASL-300:ISOU	Uranium-234	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29653	PEB	INIT	RAD	HASL-300:ISOU	Uranium-238	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-17 S1	2013-778	CAPA-13-29667	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:900	Gross alpha		U	R11	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29668	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-17 S2	2013-778	CAPA-13-29679	REG	INIT	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen		R	I19	Y

Reason Code**Description**

I19 the LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used under advisement by the LANL project chemist.

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 qualify the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.

R11

The results for the affected analytes should be regarded as not-detected (U) because the associated sample concentration was less than 3x the 1 sigma TPU.

R5

Analyte is not detected because the amount reported is less than the MDC.

U_LAB

The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field	Location	Sample	Analytical	No. Unuseable	Total No. Of
-------	----------	--------	------------	---------------	--------------

2.43	pCi/L	2.43	pCi/L	8.14	2.02	W	4/25/2013	1298376	VAL	Y
0.75	pCi/L	0.75	pCi/L	2.58	0.709	W	4/25/2013	1298712	VAL	Y
-0.585	pCi/L	-0.585	pCi/L	12.5	3.64	W	4/25/2013	1298376	VAL	Y
0.0385	pCi/L	0.0385	pCi/L	0.0409	0.011	W	4/25/2013	1302191	VAL	Y
0.00275	pCi/L	0.00275	pCi/L	0.0492	0.00614	W	4/25/2013	1302191	VAL	Y
-7.73	pCi/L	-7.73	pCi/L	73	19.6	W	4/25/2013	1298376	VAL	Y
-0.569	pCi/L	-0.569	pCi/L	5.87	1.6	W	4/25/2013	1298376	VAL	Y
0.334	pCi/L	0.334	pCi/L	0.49	0.153	W	4/25/2013	1298225	VAL	Y
-38	pCi/L	-38	pCi/L	132	35.1	W	4/25/2013	1298682	VAL	Y
0.0178	pCi/L	0.0178	pCi/L	0.051	0.0089	W	4/25/2013	1298064	VAL	Y
-0.00825	pCi/L	-0.00825	pCi/L	0.0237	0.00727	W	4/25/2013	1298064	VAL	Y
0.00222	pCi/L	0.00222	pCi/L	0.0308	0.00667	W	4/25/2013	1298064	VAL	Y
0.00295	pCi/L	0.00295	pCi/L	0.0572	0.0066	W	4/25/2013	1298061	VAL	Y
1.69	pCi/L	1.69	pCi/L	5.06	1.4	W	4/25/2013	1298376	VAL	Y
0.442	pCi/L	0.442	pCi/L	4.16	1.02	W	4/25/2013	1298376	VAL	Y
1.58	pCi/L	1.58	pCi/L	2.3	0.792	W	4/25/2013	1298712	VAL	Y
0.854	pCi/L	0.854	pCi/L	2.97	0.876	W	4/25/2013	1298712	VAL	Y
2.23	pCi/L	2.23	pCi/L	8.41	2.22	W	4/25/2013	1298376	VAL	Y
0.00351	pCi/L	0.00351	pCi/L	0.0521	0.00784	W	4/25/2013	1302191	VAL	Y
0	pCi/L	0	pCi/L	0.0628	0.00701	W	4/25/2013	1302191	VAL	Y
4.72	pCi/L	4.72	pCi/L	52	15.5	W	4/25/2013	1298376	VAL	Y
-1.78	pCi/L	-1.78	pCi/L	3.96	1.26	W	4/25/2013	1298376	VAL	Y
0.405	pCi/L	0.405	pCi/L	0.486	0.158	W	4/25/2013	1298225	VAL	Y
0.00816	pCi/L	0.00816	pCi/L	0.0234	0.00816	W	4/25/2013	1298064	VAL	Y
0	pCi/L	0	pCi/L	0.0513	0.00375	W	4/25/2013	1298061	VAL	Y
0.311	pCi/L	0.311	pCi/L	5.46	1.5	W	4/25/2013	1298376	VAL	Y
-1.2	pCi/L	-1.2	pCi/L	5.07	1.45	W	4/25/2013	1298376	VAL	Y
2.83	pCi/L	2.83	pCi/L	2.19	0.983	W	4/25/2013	1298712	VAL	Y
2.86	pCi/L	2.86	pCi/L	2.99	0.957	W	4/25/2013	1298712	VAL	Y
4.99	pCi/L	4.99	pCi/L	10.5	2.69	W	4/25/2013	1298376	VAL	Y
-0.00333	pCi/L	-0.00333	pCi/L	0.0495	0.00882	W	4/25/2013	1302191	VAL	Y
0.00333	pCi/L	0.00333	pCi/L	0.0597	0.00577	W	4/25/2013	1302191	VAL	Y
9.65	pCi/L	9.65	pCi/L	55.3	19.4	W	4/25/2013	1298376	VAL	Y
-1.23	pCi/L	-1.23	pCi/L	5.29	1.51	W	4/25/2013	1298376	VAL	Y
-0.000834	pCi/L	-0.000834	pCi/L	0.489	0.131	W	4/25/2013	1298225	VAL	Y
0.0182	pCi/L	0.0182	pCi/L	0.0262	0.0105	W	4/25/2013	1298064	VAL	Y
326	mg/L	326	mg/L			W	4/25/2013	1298397	VAL	Y

Sample ID	ID	Purpose	Method	Records	Records
CAPA-13-29650	R-17 S1	FB	SW-846:8260B	0	80
CAPA-13-29650	R-17 S1	FB	SW-846:8270C	0	80
CAPA-13-29651	R-17 S1	FD	EPA:351.2	0	1
CAPA-13-29651	R-17 S1	FD	EPA:900	0	2
CAPA-13-29651	R-17 S1	FD	EPA:901.1	0	5
CAPA-13-29651	R-17 S1	FD	EPA:905.0	0	1
CAPA-13-29651	R-17 S1	FD	HASL-300:AM-241	0	1
CAPA-13-29651	R-17 S1	FD	HASL-300:ISOPU	0	2
CAPA-13-29651	R-17 S1	FD	HASL-300:ISOU	0	3
CAPA-13-29651	R-17 S1	FD	SW-846:8260B	0	80
CAPA-13-29651	R-17 S1	FD	SW-846:8270C	0	80
CAPA-13-29651	R-17 S1	FD	SW-846:8321A_MOD	0	23
CAPA-13-29651	R-17 S1	FD	SW-846:9060	0	1
CAPA-13-29652	R-17 S1	FD	EPA:120.1	0	1
CAPA-13-29652	R-17 S1	FD	EPA:150.1	0	1
CAPA-13-29652	R-17 S1	FD	EPA:160.1	0	1
CAPA-13-29652	R-17 S1	FD	EPA:245.2	0	1
CAPA-13-29652	R-17 S1	FD	EPA:300.0	0	4
CAPA-13-29652	R-17 S1	FD	EPA:310.1	0	2
CAPA-13-29652	R-17 S1	FD	EPA:350.1	0	1
CAPA-13-29652	R-17 S1	FD	EPA:353.2	0	1
CAPA-13-29652	R-17 S1	FD	EPA:365.4	0	1
CAPA-13-29652	R-17 S1	FD	SM:A2340B	0	1
CAPA-13-29652	R-17 S1	FD	SW-846:6010B	0	17
CAPA-13-29652	R-17 S1	FD	SW-846:6020	0	11
CAPA-13-29652	R-17 S1	FD	SW-846:6850	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:120.1	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:150.1	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:160.1	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:245.2	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:300.0	0	4
CAPA-13-29653	R-17 S1	PEB	EPA:310.1	0	2
CAPA-13-29653	R-17 S1	PEB	EPA:350.1	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:351.2	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:353.2	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:365.4	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:900	0	2
CAPA-13-29653	R-17 S1	PEB	EPA:901.1	0	5
CAPA-13-29653	R-17 S1	PEB	EPA:905.0	0	1
CAPA-13-29653	R-17 S1	PEB	EPA:906.0	0	1
CAPA-13-29653	R-17 S1	PEB	HASL-300:AM-241	0	1
CAPA-13-29653	R-17 S1	PEB	HASL-300:ISOPU	0	2
CAPA-13-29653	R-17 S1	PEB	HASL-300:ISOU	0	3
CAPA-13-29653	R-17 S1	PEB	SM:A2340B	0	1
CAPA-13-29653	R-17 S1	PEB	SW-846:6010B	0	17
CAPA-13-29653	R-17 S1	PEB	SW-846:6020	0	11
CAPA-13-29653	R-17 S1	PEB	SW-846:6850	0	1
CAPA-13-29653	R-17 S1	PEB	SW-846:8260B	0	80
CAPA-13-29653	R-17 S1	PEB	SW-846:8270C	0	80
CAPA-13-29653	R-17 S1	PEB	SW-846:8321A_MOD	0	23
CAPA-13-29653	R-17 S1	PEB	SW-846:9060	0	1
CAPA-13-29660	R-17 S1	FTB	SW-846:8260B	0	80
CAPA-13-29661	R-17 S2	FTB	SW-846:8260B	0	80
CAPA-13-29667	R-17 S1	REG	EPA:351.2	0	1
CAPA-13-29667	R-17 S1	REG	EPA:900	0	2
CAPA-13-29667	R-17 S1	REG	EPA:901.1	0	5

Data Validation Report for:

Chain Of Custody No. 2013-778

CAPA-13-29667	R-17 S1	REG	EPA:905.0	0	1
CAPA-13-29667	R-17 S1	REG	HASL-300:AM-241	0	1
CAPA-13-29667	R-17 S1	REG	HASL-300:ISOPU	0	2
CAPA-13-29667	R-17 S1	REG	HASL-300:ISOU	0	3
CAPA-13-29667	R-17 S1	REG	SW-846:8260B	0	80
CAPA-13-29667	R-17 S1	REG	SW-846:8270C	0	80
CAPA-13-29667	R-17 S1	REG	SW-846:8321A_MOD	0	23
CAPA-13-29667	R-17 S1	REG	SW-846:9060	0	1
CAPA-13-29668	R-17 S2	REG	EPA:351.2	0	1
CAPA-13-29668	R-17 S2	REG	EPA:900	0	2
CAPA-13-29668	R-17 S2	REG	EPA:901.1	0	5
CAPA-13-29668	R-17 S2	REG	EPA:905.0	0	1
CAPA-13-29668	R-17 S2	REG	HASL-300:AM-241	0	1
CAPA-13-29668	R-17 S2	REG	HASL-300:ISOPU	0	2
CAPA-13-29668	R-17 S2	REG	HASL-300:ISOU	0	3
CAPA-13-29668	R-17 S2	REG	SW-846:8260B	0	80
CAPA-13-29668	R-17 S2	REG	SW-846:8270C	0	80
CAPA-13-29668	R-17 S2	REG	SW-846:8321A_MOD	0	23
CAPA-13-29668	R-17 S2	REG	SW-846:9060	0	1
CAPA-13-29678	R-17 S1	REG	EPA:120.1	0	1
CAPA-13-29678	R-17 S1	REG	EPA:150.1	0	1
CAPA-13-29678	R-17 S1	REG	EPA:160.1	0	1
CAPA-13-29678	R-17 S1	REG	EPA:245.2	0	1
CAPA-13-29678	R-17 S1	REG	EPA:300.0	0	4
CAPA-13-29678	R-17 S1	REG	EPA:310.1	0	2
CAPA-13-29678	R-17 S1	REG	EPA:350.1	0	1
CAPA-13-29678	R-17 S1	REG	EPA:353.2	0	1
CAPA-13-29678	R-17 S1	REG	EPA:365.4	0	1
CAPA-13-29678	R-17 S1	REG	SM:A2340B	0	1
CAPA-13-29678	R-17 S1	REG	SW-846:6010B	0	17
CAPA-13-29678	R-17 S1	REG	SW-846:6020	0	11
CAPA-13-29678	R-17 S1	REG	SW-846:6850	0	1
CAPA-13-29679	R-17 S2	REG	EPA:120.1	0	1
CAPA-13-29679	R-17 S2	REG	EPA:150.1	0	1
CAPA-13-29679	R-17 S2	REG	EPA:160.1	0	1
CAPA-13-29679	R-17 S2	REG	EPA:245.2	0	1
CAPA-13-29679	R-17 S2	REG	EPA:300.0	0	4
CAPA-13-29679	R-17 S2	REG	EPA:310.1	0	2
CAPA-13-29679	R-17 S2	REG	EPA:350.1	0	1
CAPA-13-29679	R-17 S2	REG	EPA:353.2	0	1
CAPA-13-29679	R-17 S2	REG	EPA:365.4	0	1
CAPA-13-29679	R-17 S2	REG	SM:A2340B	0	1
CAPA-13-29679	R-17 S2	REG	SW-846:6010B	0	17
CAPA-13-29679	R-17 S2	REG	SW-846:6020	0	11
CAPA-13-29679	R-17 S2	REG	SW-846:6850	0	1

Data Validation Report

Chain Of Custody No. 2013-778-2

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
327085	EPA:353.2	1				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
327085	EPA:353.2	1306378	1306378	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:353.2	GENERAL CHEMISTRY	CAPA-13-29679	1202887950	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAPA-13-29679	327085001	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202887952	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202887949	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?

No.

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

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

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

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

None.

13. Display Flagged Data.

No.

Reason Code Description

NQ The analytical laboratory did not qualify the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.

14. Useable Result Count.

Field	Location	Sample	Analytical	No. Unuseable	Total No. Of
Sample ID	ID	Purpose	Method	Records	Records
CAPA-13-29679	R-17 S2	REG	EPA:353.2	0	1



May 21, 2013

www.gel.com

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: 324671
SDG: 2013-778

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 27, 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,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-778
Enclosures



ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 324671
SDG: 2013-778

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Case Narrative

**Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 324671
SDG # : 2013-778**

May 22, 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 27, 2013 for analysis. Please see sample review sheet for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
324671001	CAPA-13-29667
324671002	CAPA-13-29650
324671003	CAPA-13-29651
324671004	CAPA-13-29653
324671005	CAPA-13-29668
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
324671013	CAPA-13-29660
324671014	CAPA-13-29661

Case Narrative

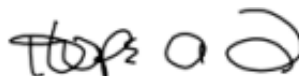
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

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.

A handwritten signature in black ink, appearing to read 'Hope Taylor'.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 21 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

Chain of Custody/Analysis Request

324671

[illegible]

SAMPLE RECEIPT & REVIEW FORM

Client: <u>LANL</u>		SDG/AR/COC/Work Order: <u>2013-778</u>
Received By: <u>MIC</u>		Date Received: <u>4-27-13</u>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags <u>Blue ice</u> Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>4C 5C</u>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>41501132</u> Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7	Are Encore containers present?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>See Attached</u>
12	Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14	Carrier and tracking number.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>5612 9852 9615 4C</u> <u>9637 4C</u> <u>9590 18C NO ICE</u> <u>9604 5C</u> <u>9626 4C</u>

Comments (Use Continuation Form if needed):

Client: LANL Received By: M. Kirskey Date Received: 042713 SDG/AR/COC/Work Order: 2013-778

ALL containers for Gross AIB were preserved prior to analysis

RN 2013-778

* CAPA-13-29667 lab received 2 container each for SIDA and Hexp, chain indicates 3 each.

* CAPA-13-29651 lab received 2 containers each for SIDA and Hexp, chain indicates 3 each

* CAPA-13-29650 lab received one container for SIDA, chain indicates 3

* CAPA-13-29653 lab received 1 container each for SIDA and Hexp, chain indicates 3. received one container for Hexmod, chain indicates two

* CAPA-13-29660 and 29661 lab received one container each for B260, chain indicates two

RN 2013-777

* CAPA-13-29548 and 29549 ~~each~~^{lab} lab received one container each for B260, chain indicates two

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

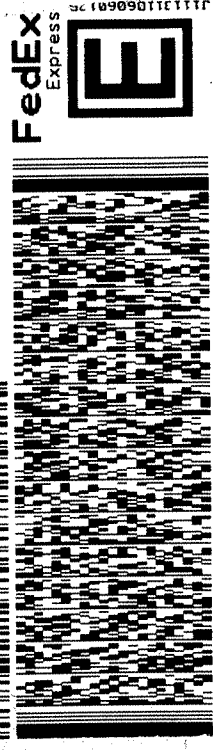
SHIP DATE: 26APR13
ACTWT: 47.0 LB MAN
CRD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: WE991158W100



SATURDAY 12:00P

PRIORITY OVERNIGHT

3 of 3

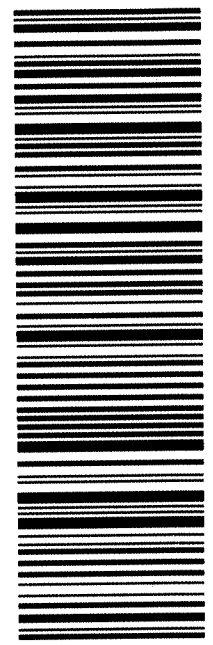
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Mstr# 5462 9832 9590

X0 CHSA

29407

SC-US CHS



Form # 156148-434 RIT2 08/10

500CT/64BE/18BC

4C

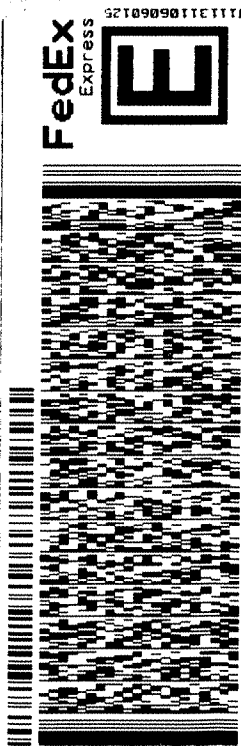
IN ID: SAFA (505) 665-9966
TH GREENE
LOS ALAMOS NATL LAB
TR00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 42.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWF0



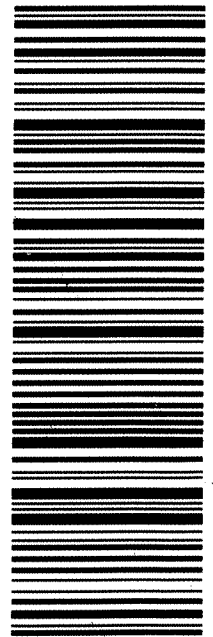
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PRIORITY OVERNIGHT

MPS# 5462 9832 9637

Mstr# 5462 9832 9626

X0 CHSA

29407
SC-US CHS



Form 156149-434 RIT2 08/10 *

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TR00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 52.0 LB MAN
CAD: 0014476/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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



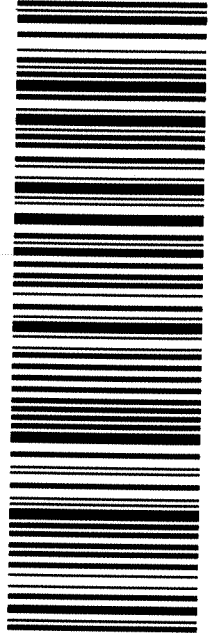
SATURDAY 12:00P
PRIORITY OVERNIGHT

1 of 3
TRK# 5462 9832 9590

MASTER

X0 CHSA

29407
SC-US CHS



Form 156149-434 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: 26APR13
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

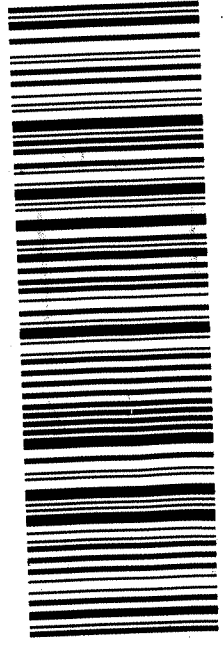


SATURDAY 12:00P
PRIORITY OVERNIGHT

MPS# 5462 9832 9604
Mstr# 5462 9832 9590

X0 CHSA

29407
SC-US CHS



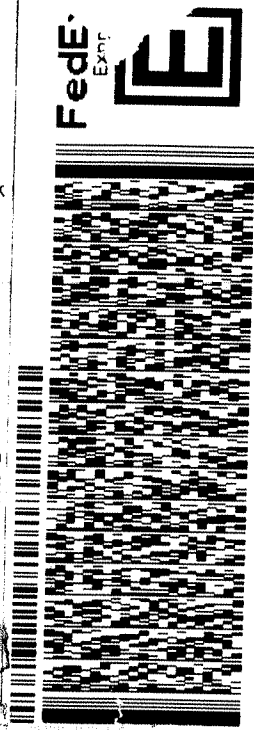
ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGNF0

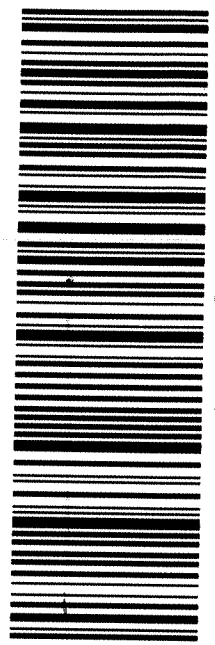


SATURDAY 12:00P
PRIORITY OVERNIGHT

1 of 2
TRK# 5462 9832 9626
MASTER

X0 CHSA

29407
SC-US CHS



Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

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

Volatile Analysis

Case Narrative

**ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-778**

Method/Analysis Information

Procedure: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW846 8260B DOE-AL

Analytical Batch Number: 1300014

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
324671001	CAPA-13-29667
324671002	CAPA-13-29650
324671003	CAPA-13-29651
324671004	CAPA-13-29653
324671005	CAPA-13-29668
324671013	CAPA-13-29660
324671014	CAPA-13-29661
1202871405	Method Blank (MB)
1202871406	324671001(CAPA-13-29667) Post Spike (PS)
1202871407	324671001(CAPA-13-29667) Post Spike Duplicate (PSD)
1202871408	Laboratory Control Sample (LCS)
1202871409	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 324671001 (CAPA-13-29667) 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: 2013-778 GEL Work Order: 324671

The Qualifiers in this report are defined as follows:

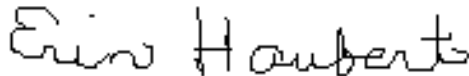
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- 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:



Name: Erin Haubert

Date: 22 MAY 2013

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778

Lab Sample ID: 324671001

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29667

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 05:05

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 05:05

Data File: 050613V4\4J139.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

Page 2 of 3

SDG Number: 2013-778

Lab Sample ID: 324671001

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29667

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 05:05

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 05:05

Data File: 050613V4\4J139.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: 2013-778

Lab Sample ID: 324671001

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29667

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 05:05

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 05:05

Column: DB-624

Data File: 050613V4\4J139.D

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	47.9	50.0	ug/L 95.9	(78%-124%)
Bromofluorobenzene	49.0	50.0	ug/L 98.0	(80%-120%)
Toluene-d8	52.8	50.0	ug/L 106	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	23.3	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671002

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29650

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 05:32

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 05:32

Data File: 050613V4\4J140.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

Page 2 of 3

SDG Number: 2013-778

Lab Sample ID: 324671002

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29650

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 05:32

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 05:32

Data File: 050613V4\4J140.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: 2013-778

Lab Sample ID: 324671002

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29650

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 05:32

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 05:32

Column: DB-624

Data File: 050613V4\4J140.D

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	49.6	50.0	ug/L 99.1	(78%-124%)
Bromofluorobenzene	48.9	50.0	ug/L 97.7	(80%-120%)
Toluene-d8	52.9	50.0	ug/L 106	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	10.4	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671003

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29651

Batch ID: 1300014

Run Date: 05/07/2013 06:00

Prep Date: 05/07/2013 06:00

Data File: 050613V4\4J141.D

Client: ARSL001

Method: SW846 8260B DOE-AL

Inst: VOA4.I

Analyst: ACJ

Project: ESHL00210

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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: 2013-778

Lab Sample ID: 324671003

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29651

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:00

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:00

Data File: 050613V4\4J141.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: 2013-778

Lab Sample ID: 324671003

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29651

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:00

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:00

Column: DB-624

Data File: 050613V4\4J141.D

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	48.6	50.0	ug/L 97.2	(78%-124%)
Bromofluorobenzene	47.8	50.0	ug/L 95.5	(80%-120%)
Toluene-d8	51.5	50.0	ug/L 103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	22.9	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671004

Date Collected: 04/25/2013 15:40

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29653

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:28

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:28

Column: DB-624

Data File: 050613V4\4J142.D

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: 2013-778

Lab Sample ID: 324671004

Date Collected: 04/25/2013 15:40

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29653

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:28

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:28

Data File: 050613V4\4J142.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**

Page 3 of 3

SDG Number: 2013-778

Lab Sample ID: 324671004

Date Collected: 04/25/2013 15:40

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29653

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:28

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:28

Column: DB-624

Data File: 050613V4\4J142.D

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	48.0	50.0	ug/L 96.0	(78%-124%)
Bromofluorobenzene	47.9	50.0	ug/L 95.8	(80%-120%)
Toluene-d8	51.0	50.0	ug/L 102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	8.99	ug/L	0	J
	unknown siloxane	14.826	5.36	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671005

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29668

Batch ID: 1300014

Run Date: 05/07/2013 06:56

Prep Date: 05/07/2013 06:56

Data File: 050613V4\4J143.D

Client: ARSL001

Method: SW846 8260B DOE-AL

Inst: VOA4.I

Analyst: ACJ

Project: ESHL00210

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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: 2013-778

Lab Sample ID: 324671005

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29668

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:56

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:56

Data File: 050613V4\4J143.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: 2013-778

Lab Sample ID: 324671005

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29668

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 06:56

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 06:56

Column: DB-624

Data File: 050613V4\4J143.D

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	48.4	50.0	96.9	(78%-124%)
Bromofluorobenzene	49.4	50.0	98.8	(80%-120%)
Toluene-d8	52.9	50.0	106	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	20.2	ug/L	0	J

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671013

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29660

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 07:24

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 07:24

Data File: 050613V4\4J144.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: 2013-778

Lab Sample ID: 324671013

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29660

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 07:24

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 07:24

Data File: 050613V4\4J144.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**

Page 3 of 3

SDG Number: 2013-778

Lab Sample ID: 324671013

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29660

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 07:24

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 07:24

Column: DB-624

Data File: 050613V4\4J144.D

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	48.8	50.0	ug/L 97.6	(78%-124%)
Bromofluorobenzene	46.4	50.0	ug/L 92.8	(80%-120%)
Toluene-d8	50.7	50.0	ug/L 101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	13.7	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778

Lab Sample ID: 324671014

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29661

Batch ID: 1300014

Run Date: 05/07/2013 07:52

Prep Date: 05/07/2013 07:52

Data File: 050613V4\4J145.D

Client: ARSL001

Method: SW846 8260B DOE-AL

Inst: VOA4.I

Analyst: ACJ

Project: ESHL00210

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

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: 2013-778

Lab Sample ID: 324671014

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29661

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 07:52

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 07:52

Data File: 050613V4\4J145.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: 2013-778

Lab Sample ID: 324671014

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Client ID: CAPA-13-29661

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 07:52

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 07:52

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	47.8	50.0	ug/L 95.6	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L 97.4	(80%-120%)
Toluene-d8	51.0	50.0	ug/L 102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	13.2	ug/L	0	J

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2013-778**Matrix Type: LIQUID**

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202871408	LCS for batch 1300014	93	103	93
1202871409	LCS for batch 1300014	97	103	103
1202871405	MB for batch 1300014	97	104	98
324671001	CAPA-13-29667	96	106	98
324671002	CAPA-13-29650	99	106	98
324671003	CAPA-13-29651	97	103	96
324671004	CAPA-13-29653	96	102	96
324671005	CAPA-13-29668	97	106	99
324671013	CAPA-13-29660	98	101	93
324671014	CAPA-13-29661	96	102	97
1202871406	CAPA-13-29667PS	92	105	88
1202871407	CAPA-13-29667PSD	92	102	89

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

Page 1 of 8

SDG Number: 2013-778

Sample Type: Post Spike

Client ID: CAPA-13-29667PS

Matrix: W

Lab Sample ID: 1202871406

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:08

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	36.9	74	36-123
74-87-3	PS Chloromethane	50.0	0.00 U	47.6	95	47-134
75-01-4	PS Vinyl chloride	50.0	0.00 U	42.8	86	49-129
74-83-9	PS Bromomethane	50.0	0.00 U	52.1	104	56-127
75-00-3	PS Chloroethane	50.0	0.00 U	44.2	88	67-122
75-69-4	PS Trichlorofluoromethane	50.0	0.00 U	42.5	85	60-123
60-29-7	PS Ethyl ether	50.0	0.00 U	42.7	85	69-121
67-64-1	PS Acetone	250	0.00 U	130	52	30-143
75-05-8	PS Acetonitrile	1250	0.00 U	1380	110	60-133
75-35-4	PS 1,1-Dichloroethylene	50.0	0.00 U	48.2	96	67-132
74-88-4	PS Iodomethane	250	0.00 U	253	101	69-147
75-09-2	PS Methylene chloride	50.0	0.00 U	46.0	92	56-135
75-15-0	PS Carbon disulfide	250	0.00 U	305	122	65-153
1634-04-4	PS tert-Butyl methyl ether	50.0	0.00 U	44.3	89	73-126
156-60-5	PS trans-1,2-Dichloroethylene	50.0	0.00 U	51.4	103	69-128
108-05-4	PS Vinyl acetate	250	0.00 U	270	108	50-143
75-34-3	PS 1,1-Dichloroethane	50.0	0.00 U	53.7	107	75-124
78-93-3	PS 2-Butanone	250	0.00 U	191	76	30-140
156-59-2	PS cis-1,2-Dichloroethylene	50.0	0.00 U	51.5	103	52-147
594-20-7	PS 2,2-Dichloropropane	50.0	0.00 U	50.7	101	67-143
67-66-3	PS Chloroform	50.0	0.00 U	49.7	99	75-125
74-97-5	PS Bromochloromethane	50.0	0.00 U	49.4	99	80-120

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Post Spike

Client ID: CAPA-13-29667PS

Matrix: W

Lab Sample ID: 1202871406

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:08

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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 47.8	96	69-140
563-58-6	PS 1,1-Dichloropropene	50.0	0.00	U 52.4	105	71-130
71-36-3	PS n-Butyl alcohol	5000	0.00	U 5550	111	53-150
56-23-5	PS Carbon tetrachloride	50.0	0.00	U 48.4	97	69-142
107-06-2	PS 1,2-Dichloroethane	50.0	0.00	U 46.9	94	72-126
71-43-2	PS Benzene	50.0	0.00	U 52.1	104	73-119
79-01-6	PS Trichloroethylene	50.0	0.00	U 51.0	102	54-147
78-87-5	PS 1,2-Dichloropropane	50.0	0.00	U 50.6	101	78-123
75-27-4	PS Bromodichloromethane	50.0	0.00	U 49.1	98	76-131
74-95-3	PS Dibromomethane	50.0	0.00	U 49.9	100	79-120
108-10-1	PS 4-Methyl-2-pentanone	250	0.00	U 265	106	68-136
10061-01-5	PS cis-1,3-Dichloropropylene	50.0	0.00	U 48.6	97	72-134
108-88-3	PS Toluene	50.0	0.00	U 53.2	106	62-126
10061-02-6	PS trans-1,3-Dichloropropylene	50.0	0.00	U 50.5	101	72-133
79-00-5	PS 1,1,2-Trichloroethane	50.0	0.00	U 51.9	104	74-120
591-78-6	PS 2-Hexanone	250	0.00	U 238	95	31-132
142-28-9	PS 1,3-Dichloropropane	50.0	0.00	U 53.9	108	73-121
127-18-4	PS Tetrachloroethylene	50.0	0.00	U 51.9	104	54-139
124-48-1	PS Dibromochloromethane	50.0	0.00	U 51.2	102	74-128
106-93-4	PS 1,2-Dibromoethane	50.0	0.00	U 49.2	98	80-120
108-90-7	PS Chlorobenzene	50.0	0.00	U 51.3	103	73-119
100-41-4	PS Ethylbenzene	50.0	0.00	U 53.4	107	66-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Post Spike

Client ID: CAPA-13-29667PS

Matrix: W

Lab Sample ID: 1202871406

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:08

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	109	109	56-134
95-47-6	PS o-Xylene	50.0	0.00 U	54.9	110	68-126
100-42-5	PS Styrene	50.0	0.00 U	56.0	112	57-138
75-25-2	PS Bromoform	50.0	0.00 U	44.8	90	66-129
79-34-5	PS 1,1,2,2-Tetrachloroethane	50.0	0.00 U	49.7	99	44-146
96-18-4	PS 1,2,3-Trichloropropane	50.0	0.00 U	46.3	93	68-129
108-86-1	PS Bromobenzene	50.0	0.00 U	46.3	93	70-122
103-65-1	PS n-Propylbenzene	50.0	0.00 U	50.4	101	61-131
95-49-8	PS 2-Chlorotoluene	50.0	0.00 U	50.0	100	66-126
98-82-8	PS Isopropylbenzene	50.0	0.00 U	48.3	97	65-130
108-67-8	PS 1,3,5-Trimethylbenzene	50.0	0.00 U	50.2	100	58-134
106-43-4	PS 4-Chlorotoluene	50.0	0.00 U	48.2	96	63-125
98-06-6	PS tert-Butylbenzene	50.0	0.00 U	48.2	96	66-129
95-63-6	PS 1,2,4-Trimethylbenzene	50.0	0.00 U	50.2	100	60-131
135-98-8	PS sec-Butylbenzene	50.0	0.00 U	51.6	103	62-130
99-87-6	PS 4-Isopropyltoluene	50.0	0.00 U	51.6	103	62-132
541-73-1	PS 1,3-Dichlorobenzene	50.0	0.00 U	49.3	99	66-121
106-46-7	PS 1,4-Dichlorobenzene	50.0	0.00 U	48.9	98	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	43.7	87	58-137
87-68-3	PS Hexachlorobutadiene	50.0	0.00 U	43.0	86	49-139
91-20-3	PS Naphthalene	50.0	0.00 U	41.4	83	46-145

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Post Spike

Client ID: CAPA-13-29667PS

Matrix: W

Lab Sample ID: 1202871406

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:08

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	40.3	81	54-134
630-20-6	PS 1,1,1,2-Tetrachloroethane	50.0	0.00 U	52.7	105	79-128
120-82-1	PS 1,2,4-Trichlorobenzene	50.0	0.00 U	41.9	84	55-128
95-50-1	PS 1,2-Dichlorobenzene	50.0	0.00 U	48.8	98	68-121

Volatile
Quality Control Summary
Spike Recovery Report

Page 5 of 8

SDG Number: 2013-778

Sample Type: Post Spike Duplicate

Client ID: CAPA-13-29667PSD

Matrix: W

Lab Sample ID: 1202871407

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:36

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	42.4	85	36-123	14	0-20
74-87-3	PSD Chloromethane	50.0	0.00 U	47.8	96	47-134	1	0-20
75-01-4	PSD Vinyl chloride	50.0	0.00 U	44.2	88	49-129	3	0-20
74-83-9	PSD Bromomethane	50.0	0.00 U	53.0	106	56-127	2	0-20
75-00-3	PSD Chloroethane	50.0	0.00 U	47.1	94	67-122	6	0-20
75-69-4	PSD Trichlorofluoromethane	50.0	0.00 U	46.9	94	60-123	10	0-20
60-29-7	PSD Ethyl ether	50.0	0.00 U	43.9	88	69-121	3	0-20
67-64-1	PSD Acetone	250	0.00 U	128	51	30-143	2	0-20
75-05-8	PSD Acetonitrile	1250	0.00 U	1340	107	60-133	3	0-20
75-35-4	PSD 1,1-Dichloroethylene	50.0	0.00 U	52.5	105	67-132	9	0-20
74-88-4	PSD Iodomethane	250	0.00 U	263	105	69-147	4	0-20
75-09-2	PSD Methylene chloride	50.0	0.00 U	47.3	95	56-135	3	0-20
75-15-0	PSD Carbon disulfide	250	0.00 U	315	126	65-153	3	0-20
1634-04-4	PSD tert-Butyl methyl ether	50.0	0.00 U	45.6	91	73-126	3	0-20
156-60-5	PSD trans-1,2-Dichloroethylene	50.0	0.00 U	53.6	107	69-128	4	0-20
108-05-4	PSD Vinyl acetate	250	0.00 U	261	104	50-143	3	0-20
75-34-3	PSD 1,1-Dichloroethane	50.0	0.00 U	53.9	108	75-124	0	0-20
78-93-3	PSD 2-Butanone	250	0.00 U	184	74	30-140	4	0-20
156-59-2	PSD cis-1,2-Dichloroethylene	50.0	0.00 U	52.5	105	52-147	2	0-20
594-20-7	PSD 2,2-Dichloropropane	50.0	0.00 U	52.2	104	67-143	3	0-20
67-66-3	PSD Chloroform	50.0	0.00 U	51.4	103	75-125	3	0-20
74-97-5	PSD Bromochloromethane	50.0	0.00 U	50.2	100	80-120	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Post Spike Duplicate

Client ID: CAPA-13-29667PSD

Matrix: W

Lab Sample ID: 1202871407

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:36

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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 50.8	102	69-140	6	0-20
563-58-6	PSD 1,1-Dichloropropene	50.0	0.00	U 55.5	111	71-130	6	0-20
71-36-3	PSD n-Butyl alcohol	5000	0.00	U 5450	109	53-150	2	0-20
56-23-5	PSD Carbon tetrachloride	50.0	0.00	U 51.9	104	69-142	7	0-20
107-06-2	PSD 1,2-Dichloroethane	50.0	0.00	U 46.4	93	72-126	1	0-20
71-43-2	PSD Benzene	50.0	0.00	U 53.3	107	73-119	2	0-20
79-01-6	PSD Trichloroethylene	50.0	0.00	U 52.5	105	54-147	3	0-20
78-87-5	PSD 1,2-Dichloropropane	50.0	0.00	U 50.6	101	78-123	0	0-20
75-27-4	PSD Bromodichloromethane	50.0	0.00	U 49.8	100	76-131	1	0-20
74-95-3	PSD Dibromomethane	50.0	0.00	U 48.7	97	79-120	2	0-20
108-10-1	PSD 4-Methyl-2-pentanone	250	0.00	U 259	104	68-136	2	0-20
10061-01-5	PSD cis-1,3-Dichloropropylene	50.0	0.00	U 49.0	98	72-134	1	0-20
108-88-3	PSD Toluene	50.0	0.00	U 53.9	108	62-126	1	0-20
10061-02-6	PSD trans-1,3-Dichloropropylene	50.0	0.00	U 50.3	101	72-133	0	0-20
79-00-5	PSD 1,1,2-Trichloroethane	50.0	0.00	U 51.7	103	74-120	0	0-20
591-78-6	PSD 2-Hexanone	250	0.00	U 228	91	31-132	5	0-20
142-28-9	PSD 1,3-Dichloropropane	50.0	0.00	U 52.2	104	73-121	3	0-20
127-18-4	PSD Tetrachloroethylene	50.0	0.00	U 53.2	106	54-139	2	0-20
124-48-1	PSD Dibromochloromethane	50.0	0.00	U 50.5	101	74-128	1	0-20
106-93-4	PSD 1,2-Dibromoethane	50.0	0.00	U 49.1	98	80-120	0	0-20
108-90-7	PSD Chlorobenzene	50.0	0.00	U 51.5	103	73-119	0	0-20
100-41-4	PSD Ethylbenzene	50.0	0.00	U 53.4	107	66-125	0	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Post Spike Duplicate

Client ID: CAPA-13-29667PSD

Matrix: W

Lab Sample ID: 1202871407

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:36

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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 109	109	56-134	0	0-20
95-47-6	PSD o-Xylene	50.0	0.00	U 54.2	108	68-126	1	0-20
100-42-5	PSD Styrene	50.0	0.00	U 54.5	109	57-138	3	0-20
75-25-2	PSD Bromoform	50.0	0.00	U 46.5	93	66-129	4	0-20
79-34-5	PSD 1,1,2,2-Tetrachloroethane	50.0	0.00	U 49.0	98	44-146	1	0-20
96-18-4	PSD 1,2,3-Trichloropropane	50.0	0.00	U 45.4	91	68-129	2	0-20
108-86-1	PSD Bromobenzene	50.0	0.00	U 45.9	92	70-122	1	0-20
103-65-1	PSD n-Propylbenzene	50.0	0.00	U 51.7	103	61-131	3	0-20
95-49-8	PSD 2-Chlorotoluene	50.0	0.00	U 49.5	99	66-126	1	0-20
98-82-8	PSD Isopropylbenzene	50.0	0.00	U 49.7	99	65-130	3	0-20
108-67-8	PSD 1,3,5-Trimethylbenzene	50.0	0.00	U 51.0	102	58-134	2	0-20
106-43-4	PSD 4-Chlorotoluene	50.0	0.00	U 48.4	97	63-125	0	0-20
98-06-6	PSD tert-Butylbenzene	50.0	0.00	U 49.2	98	66-129	2	0-20
95-63-6	PSD 1,2,4-Trimethylbenzene	50.0	0.00	U 51.3	103	60-131	2	0-20
135-98-8	PSD sec-Butylbenzene	50.0	0.00	U 53.2	106	62-130	3	0-20
99-87-6	PSD 4-Isopropyltoluene	50.0	0.00	U 53.6	107	62-132	4	0-20
541-73-1	PSD 1,3-Dichlorobenzene	50.0	0.00	U 50.2	100	66-121	2	0-20
106-46-7	PSD 1,4-Dichlorobenzene	50.0	0.00	U 49.5	99	65-119	1	0-20
104-51-8	PSD n-Butylbenzene	50.0	0.00	U 55.2	110	55-134	4	0-20
96-12-8	PSD 1,2-Dibromo-3-chloropropane	50.0	0.00	U 44.0	88	58-137	1	0-20
87-68-3	PSD Hexachlorobutadiene	50.0	0.00	U 46.1	92	49-139	7	0-20
91-20-3	PSD Naphthalene	50.0	0.00	U 42.3	85	46-145	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Post Spike Duplicate

Client ID: CAPA-13-29667PSD

Matrix: W

Lab Sample ID: 1202871407

Instrument: VOA4.I

Analysis Date: 05/07/2013 11:36

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	41.2	82	54-134	2	0-20
630-20-6	PSD 1,1,1,2-Tetrachloroethane	50.0	0.00 U	52.0	104	79-128	1	0-20
120-82-1	PSD 1,2,4-Trichlorobenzene	50.0	0.00 U	42.8	86	55-128	2	0-20
95-50-1	PSD 1,2-Dichlorobenzene	50.0	0.00 U	49.7	99	68-121	2	0-20

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1300014

Matrix: WATER

Lab Sample ID: 1202871408

Instrument: VOA4.I

Analysis Date: 05/07/2013 01:20

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	39.5	79	39-124
74-87-3	LCS Chloromethane	50.0	0.0	45.4	91	57-126
75-01-4	LCS Vinyl chloride	50.0	0.0	39.1	78	62-121
74-83-9	LCS Bromomethane	50.0	0.0	47.1	94	68-120
75-00-3	LCS Chloroethane	50.0	0.0	44.7	89	73-120
75-69-4	LCS Trichlorofluoromethane	50.0	0.0	43.5	87	65-123
60-29-7	LCS Ethyl ether	50.0	0.0	45.0	90	74-120
67-64-1	LCS Acetone	250	0.0	150	60	36-163
75-05-8	LCS Acetonitrile	1250	0.0	1400	112	64-127
75-35-4	LCS 1,1-Dichloroethylene	50.0	0.0	51.9	104	76-127
74-88-4	LCS Iodomethane	250	0.0	264	106	80-134
75-09-2	LCS Methylene chloride	50.0	0.0	48.6	97	72-121
75-15-0	LCS Carbon disulfide	250	0.0	290	116	80-143
1634-04-4	LCS tert-Butyl methyl ether	50.0	0.0	48.6	97	76-123
156-60-5	LCS trans-1,2-Dichloroethylene	50.0	0.0	50.1	100	77-123
108-05-4	LCS Vinyl acetate	250	0.0	254	102	75-144
75-34-3	LCS 1,1-Dichloroethane	50.0	0.0	50.7	101	79-120
78-93-3	LCS 2-Butanone	250	0.0	198	79	46-158
156-59-2	LCS cis-1,2-Dichloroethylene	50.0	0.0	51.0	102	80-122
594-20-7	LCS 2,2-Dichloropropane	50.0	0.0	44.6	89	76-145
67-66-3	LCS Chloroform	50.0	0.0	49.5	99	80-120
74-97-5	LCS Bromochloromethane	50.0	0.0	50.2	100	83-120

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1300014

Matrix: WATER

Lab Sample ID: 1202871408

Instrument: VOA4.I

Analysis Date: 05/07/2013 01:20

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS 1,1,1-Trichloroethane	50.0	0.0	47.8	96	80-133
563-58-6	LCS 1,1-Dichloropropene	50.0	0.0	50.5	101	80-127
71-36-3	LCS n-Butyl alcohol	5000	0.0	5600	112	66-138
56-23-5	LCS Carbon tetrachloride	50.0	0.0	47.3	95	77-139
107-06-2	LCS 1,2-Dichloroethane	50.0	0.0	47.3	95	75-121
71-43-2	LCS Benzene	50.0	0.0	50.2	100	79-120
79-01-6	LCS Trichloroethylene	50.0	0.0	49.0	98	80-121
78-87-5	LCS 1,2-Dichloropropane	50.0	0.0	49.2	98	80-120
75-27-4	LCS Bromodichloromethane	50.0	0.0	49.9	100	80-127
74-95-3	LCS Dibromomethane	50.0	0.0	49.7	99	80-120
108-10-1	LCS 4-Methyl-2-pentanone	250	0.0	263	105	76-131
10061-01-5	LCS cis-1,3-Dichloropropylene	50.0	0.0	49.7	99	80-127
108-88-3	LCS Toluene	50.0	0.0	50.1	100	77-120
10061-02-6	LCS trans-1,3-Dichloropropylene	50.0	0.0	49.6	99	80-128
79-00-5	LCS 1,1,2-Trichloroethane	50.0	0.0	51.1	102	79-120
591-78-6	LCS 2-Hexanone	250	0.0	237	95	53-158
142-28-9	LCS 1,3-Dichloropropane	50.0	0.0	51.4	103	77-120
127-18-4	LCS Tetrachloroethylene	50.0	0.0	47.0	94	77-125
124-48-1	LCS Dibromochloromethane	50.0	0.0	52.1	104	77-126
106-93-4	LCS 1,2-Dibromoethane	50.0	0.0	50.3	101	80-120
108-90-7	LCS Chlorobenzene	50.0	0.0	49.0	98	80-120
100-41-4	LCS Ethylbenzene	50.0	0.0	49.7	99	78-120

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1300014

Matrix: WATER

Lab Sample ID: 1202871408

Instrument: VOA4.I

Analysis Date: 05/07/2013 01:20

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	100	100	79-120
95-47-6	LCS o-Xylene	50.0	0.0	51.0	102	80-120
100-42-5	LCS Styrene	50.0	0.0	52.0	104	80-121
75-25-2	LCS Bromoform	50.0	0.0	48.5	97	72-125
79-34-5	LCS 1,1,2,2-Tetrachloroethane	50.0	0.0	49.8	100	73-120
96-18-4	LCS 1,2,3-Trichloropropane	50.0	0.0	47.2	94	74-121
108-86-1	LCS Bromobenzene	50.0	0.0	45.6	91	79-120
103-65-1	LCS n-Propylbenzene	50.0	0.0	47.6	95	75-125
95-49-8	LCS 2-Chlorotoluene	50.0	0.0	47.0	94	77-121
98-82-8	LCS Isopropylbenzene	50.0	0.0	47.4	95	76-125
108-67-8	LCS 1,3,5-Trimethylbenzene	50.0	0.0	48.6	97	77-123
106-43-4	LCS 4-Chlorotoluene	50.0	0.0	46.3	93	75-120
98-06-6	LCS tert-Butylbenzene	50.0	0.0	46.8	94	79-123
95-63-6	LCS 1,2,4-Trimethylbenzene	50.0	0.0	48.2	96	77-121
135-98-8	LCS sec-Butylbenzene	50.0	0.0	48.9	98	76-124
99-87-6	LCS 4-Isopropyltoluene	50.0	0.0	48.9	98	79-125
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	46.9	94	78-120
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	46.2	92	77-120
104-51-8	LCS n-Butylbenzene	50.0	0.0	48.4	97	75-127
96-12-8	LCS 1,2-Dibromo-3-chloropropane	50.0	0.0	47.0	94	69-128
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	40.4	81	75-128
91-20-3	LCS Naphthalene	50.0	0.0	42.6	85	71-125

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1300014

Matrix: WATER

Lab Sample ID: 1202871408

Instrument: VOA4.I

Analysis Date: 05/07/2013 01:20

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	38.4	77	73-125
630-20-6	LCS 1,1,1,2-Tetrachloroethane	50.0	0.0	49.9	100	80-124
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	38.8	78	75-123
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	47.8	96	79-120

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1300014

Matrix: WATER

Lab Sample ID: 1202871409

Instrument: VOA4.I

Analysis Date: 05/07/2013 02:16

Dilution: 1

Analyst: ACJ

Prep Batch ID: 1300014

Purge Vol: 5 mL

Batch ID: 1300014

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	238	95	28-152
76-13-1	LCS Trichlorotrifluoroethane	250	0.0	255	102	65-157
107-05-1	LCS Allyl chloride	250	0.0	262	105	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	39.1	78	45-159
107-12-0	LCS Propionitrile	250	0.0	244	98	67-135
126-98-7	LCS Methacrylonitrile	250	0.0	246	98	64-132
78-83-1	LCS Isobutyl alcohol	2500	0.0	2430	97	60-136
80-62-6	LCS Methyl methacrylate	250	0.0	251	100	66-129
97-63-2	LCS Ethyl methacrylate	250	0.0	263	105	66-132

Method Blank Summary

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SDG Number:	2013-778	Client:	ARSL001	Matrix:	WATER
Client ID:	MB for batch 1300014	Instrument ID:	VOA4.I	Data File:	050613V4\4J134BA.D
Lab Sample ID:	1202871405	Prep Date:	05/07/2013 02:44	Analyzed:	05/07/13 02:44
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 1300014	1202871408	050613V4\4J131LA.D	05/07/13	0120
02 LCS for batch 1300014	1202871409	050613V4\4J133SA.D	05/07/13	0216
03 CAPA-13-29667	324671001	050613V4\4J139.D	05/07/13	0505
04 CAPA-13-29650	324671002	050613V4\4J140.D	05/07/13	0532
05 CAPA-13-29651	324671003	050613V4\4J141.D	05/07/13	0600
06 CAPA-13-29653	324671004	050613V4\4J142.D	05/07/13	0628
07 CAPA-13-29668	324671005	050613V4\4J143.D	05/07/13	0656
08 CAPA-13-29660	324671013	050613V4\4J144.D	05/07/13	0724
09 CAPA-13-29661	324671014	050613V4\4J145.D	05/07/13	0752
10 CAPA-13-29667PS	1202871406	050613V4\4J152.D	05/07/13	1108
11 CAPA-13-29667PSD	1202871407	050613V4\4J153.D	05/07/13	1136

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778		Matrix:	WATER
Lab Sample ID: 1202871405			
Client Sample: QC for batch 1300014	Client: ARSL001	Project:	QC
Client ID: MB for batch 1300014	Method: SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID: 1300014	Inst: VOA4.I	Dilution:	1
Run Date: 05/07/2013 02:44	Analyst: ACJ	Purge Vol:	5 mL
Prep Date: 05/07/2013 02:44			
Data File: 050613V4\4J134BA.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:	2013-778	Matrix:	WATER
Lab Sample ID:	1202871405		
Client Sample:	QC for batch 1300014	Client:	ARSL001
Client ID:	MB for batch 1300014	Method:	SW846 8260B DOE-AL
Batch ID:	1300014	Inst:	VOA4.I
Run Date:	05/07/2013 02:44	Analyst:	ACJ
Prep Date:	05/07/2013 02:44	Purge Vol:	5 mL
Data File:	050613V4\4J134BA.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

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SDG Number:	2013-778	Matrix:	WATER
Lab Sample ID:	1202871405		
Client Sample:	QC for batch 1300014	Client:	ARSL001
Client ID:	MB for batch 1300014	Method:	SW846 8260B DOE-AL
Batch ID:	1300014	Inst:	VOA4.I
Run Date:	05/07/2013 02:44	Analyst:	ACJ
Prep Date:	05/07/2013 02:44	Purge Vol:	5 mL
Data File:	050613V4\4J134BA.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	48.3	50.0	96.7	(78%-124%)
Bromofluorobenzene	49.1	50.0	98.2	(80%-120%)
Toluene-d8	52.2	50.0	104	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.482	8.14	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778	Date Collected: 04/25/2013 12:41	Matrix: W
Lab Sample ID: 1202871406	Date Received: 04/27/2013 09:00	
Client Sample: QC for batch 1300014	Client: ARSL001	Project: QC
Client ID: CAPA-13-29667PS	Method: SW846 8260B DOE-AL	SOP Ref: GL-OA-E-038
Batch ID: 1300014	Inst: VOA4.I	Dilution: 1
Run Date: 05/07/2013 11:08	Analyst: ACJ	Purge Vol: 5 mL
Prep Date: 05/07/2013 11:08		
Data File: 050613V4\4J152.D	Column: DB-624	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		36.9	ug/L	0.300	1.00
74-87-3	Chloromethane		47.6	ug/L	0.300	1.00
75-01-4	Vinyl chloride		42.8	ug/L	0.300	1.00
74-83-9	Bromomethane		52.1	ug/L	0.300	1.00
75-00-3	Chloroethane		44.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		42.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		42.7	ug/L	0.300	1.00
67-64-1	Acetone		130	ug/L	3.00	10.0
75-05-8	Acetonitrile		1380	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		48.2	ug/L	0.300	1.00
74-88-4	Iodomethane		253	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide		305	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		44.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		51.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		270	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		53.7	ug/L	0.300	1.00
78-93-3	2-Butanone		191	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		51.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		50.7	ug/L	0.300	1.00
67-66-3	Chloroform		49.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.4	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		47.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		52.4	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5550	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		48.4	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.9	ug/L	0.300	1.00
71-43-2	Benzene		52.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		265	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		48.6	ug/L	0.300	1.00
108-88-3	Toluene		53.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.9	ug/L	0.300	1.00
591-78-6	2-Hexanone		238	ug/L	2.20	5.00

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202871406	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1300014	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667PS	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1300014	Inst:	VOA4.I	Dilution:	1
Run Date:	05/07/2013 11:08	Analyst:	ACJ	Purge Vol:	5 mL
Prep Date:	05/07/2013 11:08				
Data File:	050613V4\4J152.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		53.9	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.2	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		51.3	ug/L	0.300	1.00
100-41-4	Ethylbenzene		53.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		109	ug/L	0.300	2.00
95-47-6	o-Xylene		54.9	ug/L	0.300	1.00
100-42-5	Styrene		56.0	ug/L	0.300	1.00
75-25-2	Bromoform		44.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.3	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.4	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		48.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		50.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		51.6	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.9	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		43.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		43.0	ug/L	0.300	1.00
91-20-3	Naphthalene		41.4	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		40.3	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
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Sample Summary

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SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202871406	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1300014	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667PS	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1300014	Inst:	VOA4.I	Dilution:	1
Run Date:	05/07/2013 11:08	Analyst:	ACJ	Purge Vol:	5 mL
Prep Date:	05/07/2013 11:08				
Data File:	050613V4\4J152.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		52.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		41.9	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.1	50.0	ug/L 92.3	(78%-124%)
Bromofluorobenzene	44.2	50.0	ug/L 88.4	(80%-120%)
Toluene-d8	52.3	50.0	ug/L 105	(80%-120%)

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202871407	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1300014	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1300014	Inst:	VOA4.I	Dilution:	1
Run Date:	05/07/2013 11:36	Analyst:	ACJ	Purge Vol:	5 mL
Prep Date:	05/07/2013 11:36				
Data File:	050613V4\4J153.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		42.4	ug/L	0.300	1.00
74-87-3	Chloromethane		47.8	ug/L	0.300	1.00
75-01-4	Vinyl chloride		44.2	ug/L	0.300	1.00
74-83-9	Bromomethane		53.0	ug/L	0.300	1.00
75-00-3	Chloroethane		47.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		46.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		43.9	ug/L	0.300	1.00
67-64-1	Acetone		128	ug/L	3.00	10.0
75-05-8	Acetonitrile		1340	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		52.5	ug/L	0.300	1.00
74-88-4	Iodomethane		263	ug/L	1.50	5.00
75-09-2	Methylene chloride		47.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		315	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		45.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		261	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		53.9	ug/L	0.300	1.00
78-93-3	2-Butanone		184	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.2	ug/L	0.300	1.00
67-66-3	Chloroform		51.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		50.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		55.5	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5450	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.4	ug/L	0.300	1.00
71-43-2	Benzene		53.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.8	ug/L	0.300	1.00
74-95-3	Dibromomethane		48.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		259	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		49.0	ug/L	0.300	1.00
108-88-3	Toluene		53.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.3	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		228	ug/L	2.20	5.00

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Sample Summary**

SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202871407	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1300014	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1300014	Inst:	VOA4.I	Dilution:	1
Run Date:	05/07/2013 11:36	Analyst:	ACJ	Purge Vol:	5 mL
Prep Date:	05/07/2013 11:36				
Data File:	050613V4\4J153.D	Column:	DB-624		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		52.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		53.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		50.5	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		51.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		53.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		109	ug/L	0.300	2.00
95-47-6	o-Xylene		54.2	ug/L	0.300	1.00
100-42-5	Styrene		54.5	ug/L	0.300	1.00
75-25-2	Bromoform		46.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.0	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		45.4	ug/L	0.300	1.00
108-86-1	Bromobenzene		45.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.7	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		49.5	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		49.7	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.0	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.4	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		53.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		50.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		55.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		44.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		46.1	ug/L	0.300	1.00
91-20-3	Naphthalene		42.3	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		41.2	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
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Sample Summary**

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SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202871407	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1300014	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667PSD	Method:	SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID:	1300014	Inst:	VOA4.I	Dilution:	1
Run Date:	05/07/2013 11:36	Analyst:	ACJ	Purge Vol:	5 mL
Prep Date:	05/07/2013 11:36				
Data File:	050613V4\4J153.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		52.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		42.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.1	50.0	ug/L 92.2	(78%-124%)
Bromofluorobenzene	44.6	50.0	ug/L 89.2	(80%-120%)
Toluene-d8	51.1	50.0	ug/L 102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778

Matrix: WATER

Lab Sample ID: 1202871408

Client Sample: QC for batch 1300014

Client: ARSL001

Project: QC

Client ID: LCS for batch 1300014

Method: SW846 8260B DOE-AL

SOP Ref: GL-OA-E-038

Batch ID: 1300014

Inst: VOA4.I

Dilution: 1

Run Date: 05/07/2013 01:20

Analyst: ACJ

Purge Vol: 5 mL

Prep Date: 05/07/2013 01:20

Data File: 050613V4\4J131LA.D

Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		39.5	ug/L	0.300	1.00
74-87-3	Chloromethane		45.4	ug/L	0.300	1.00
75-01-4	Vinyl chloride		39.1	ug/L	0.300	1.00
74-83-9	Bromomethane		47.1	ug/L	0.300	1.00
75-00-3	Chloroethane		44.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		43.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.0	ug/L	0.300	1.00
67-64-1	Acetone		150	ug/L	3.00	10.0
75-05-8	Acetonitrile		1400	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.9	ug/L	0.300	1.00
74-88-4	Iodomethane		264	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.6	ug/L	3.00	10.0
75-15-0	Carbon disulfide		290	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		48.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		254	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		50.7	ug/L	0.300	1.00
78-93-3	2-Butanone		198	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		51.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		44.6	ug/L	0.300	1.00
67-66-3	Chloroform		49.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		50.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		47.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.5	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5600	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		47.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.3	ug/L	0.300	1.00
71-43-2	Benzene		50.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		49.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		263	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		49.7	ug/L	0.300	1.00
108-88-3	Toluene		50.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		237	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778	Matrix: WATER
Lab Sample ID: 1202871408	
Client Sample: QC for batch 1300014	Client: ARSL001
Client ID: LCS for batch 1300014	Method: SW846 8260B DOE-AL
Batch ID: 1300014	Project: QC
Run Date: 05/07/2013 01:20	SOP Ref: GL-OA-E-038
Prep Date: 05/07/2013 01:20	Dilution: 1
Data File: 050613V4\4J131LA.D	Purge Vol: 5 mL
	Column: DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		51.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.1	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.7	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		100	ug/L	0.300	2.00
95-47-6	o-Xylene		51.0	ug/L	0.300	1.00
100-42-5	Styrene		52.0	ug/L	0.300	1.00
75-25-2	Bromoform		48.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.8	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		47.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		45.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		47.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		47.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		47.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		48.6	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		46.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		46.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		48.9	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.2	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		48.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		47.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		40.4	ug/L	0.300	1.00
91-20-3	Naphthalene		42.6	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		38.4	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**

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SDG Number:	2013-778	Matrix:	WATER
Lab Sample ID:	1202871408		
Client Sample:	QC for batch 1300014	Client:	ARSL001
Client ID:	LCS for batch 1300014	Method:	SW846 8260B DOE-AL
Batch ID:	1300014	Inst:	VOA4.I
Run Date:	05/07/2013 01:20	Analyst:	ACJ
Prep Date:	05/07/2013 01:20	Purge Vol:	5 mL
Data File:	050613V4\4J131LA.D	Column:	DB-624

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.9	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		38.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.4	50.0	92.7	(78%-124%)
Bromofluorobenzene	46.3	50.0	92.7	(80%-120%)
Toluene-d8	51.6	50.0	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778		Matrix:	WATER
Lab Sample ID: 1202871409			
Client Sample: QC for batch 1300014	Client: ARSL001	Project:	QC
Client ID: LCS for batch 1300014	Method: SW846 8260B DOE-AL	SOP Ref:	GL-OA-E-038
Batch ID: 1300014	Inst: VOA4.I	Dilution:	1
Run Date: 05/07/2013 02:16	Analyst: ACJ	Purge Vol:	5 mL
Prep Date: 05/07/2013 02:16			
Data File: 050613V4\4J133SA.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:	2013-778	Matrix:	WATER
Lab Sample ID:	1202871409		
Client Sample:	QC for batch 1300014	Client:	ARSL001
Client ID:	LCS for batch 1300014	Method:	SW846 8260B DOE-AL
Batch ID:	1300014	Inst:	VOA4.I
Run Date:	05/07/2013 02:16	Analyst:	ACJ
Prep Date:	05/07/2013 02:16	Purge Vol:	5 mL
Data File:	050613V4\4J133SA.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		238	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		255	ug/L	1.50	5.00
107-05-1	Allyl chloride		262	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		39.1	ug/L	0.300	1.00
107-12-0	Propionitrile		244	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		246	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2430	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		251	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2013-778

Lab Sample ID: 1202871409

Client Sample: QC for batch 1300014

Client ID: LCS for batch 1300014

Batch ID: 1300014

Run Date: 05/07/2013 02:16

Prep Date: 05/07/2013 02:16

Data File: 050613V4\4J133SA.D

Client: ARSL001

Method: SW846 8260B DOE-AL

Inst: VOA4.I

Analyst: ACJ

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		263	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	48.6	50.0	ug/L 97.1	(78%-124%)
Bromofluorobenzene	51.6	50.0	ug/L 103	(80%-120%)
Toluene-d8	51.3	50.0	ug/L 103	(80%-120%)

Semi-Volatile Analysis

Case Narrative

**Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-778**

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:	1298462
Prep Batch Number:	1298461

Sample Analysis

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

Sample ID	Client ID
324671001	CAPA-13-29667
324671002	CAPA-13-29650
324671003	CAPA-13-29651
324671004	CAPA-13-29653
324671005	CAPA-13-29668
1202867361	Method Blank (MB)
1202867362	Laboratory Control Sample (LCS)
1202867363	324671001(CAPA-13-29667) Matrix Spike (MS)
1202867364	324671001(CAPA-13-29667) Matrix Spike Duplicate (MSD)

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

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

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

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

Initial Calibration

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

CCV Requirements

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS(1202867362) recovered p-Nitroaniline outside of the acceptance limits. Please see the QC Summary report for specific failure. Since there were no target analytes detected in the associated client samples, the biased high spike recovery had no adverse impact on the data and the results have been reported. Please note that the LCS(1202867362) exceeded the instrument calibration range for the spike analyte Benzidine, but was within the recovery acceptance limits. The data results have been reported.

QC Sample Designation

Sample 324671001 (CAPA-13-29667) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement

The MS(1202867363(CAPA-13-29667)) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific failures. Since there were no target analytes detected in the associated parent sample, the biased high spike recoveries had no adverse impact on the data and the results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD(1202867364(CAPA-13-29667)) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific failures. Since there were no target analytes detected in the associated parent sample, the biased high spike recoveries had no adverse impact on the data and the results have been reported.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD(s) between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance

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

Technical Information:

Holding Time Specifications

All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding

times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions

The 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

The following DER was generated for this SDG: 1182775.

Manual Integrations

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

TIC Comment

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

Additional Comments

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

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

Electronic Package Comment

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

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

System Configuration

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

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD8.I	Agilent 6890/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

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

GEL LABORATORIES LLC

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

Qualifier Definition Report for

ARSL001 ARS International (63641-10)

Client SDG: 2013-778 GEL Work Order: 324671

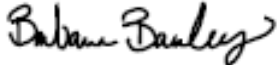
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- E Concentration of the target analyte exceeds the instrument calibration range
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

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

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

Signature: 

Name: Barbara Bailey

Date: 20 MAY 2013

Title: Data Validator

Sample Data Summary

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2013-778

Lab Sample ID: 324671001

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Method: SW846 8270C

SOP Ref: GL-OA-E-009

Inst: MSD8.I

Dilution: 1

Run Date: 05/01/2013 23:23

Analyst: RMB

Inj. Vol: 1 uL

Prep Date: 05/01/2013 09:00

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s050113a.B\s8E0127.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	U	10.0	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
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	U	10.0	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
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
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline	U	10.0	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
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: 2013-778

Lab Sample ID: 324671001

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Method: SW846 8270C

SOP Ref: GL-OA-E-009

Inst: MSD8.I

Dilution: 1

Batch ID: 1298462

Run Date: 05/01/2013 23:23

Analyst: RMB

Inj. Vol: 1 uL

Prep Date: 05/01/2013 09:00

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s050113a.B\s8E0127.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	U	10.0	ug/L	3.00	10.0
	<i>p</i> -Nitroaniline					
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	U	10.0	ug/L	3.00	10.0
	<i>1,2</i> -Diphenylhydrazine					
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**

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SDG Number: 2013-778
Lab Sample ID: 324671001

Date Collected: 04/25/2013 12:41
Date Received: 04/27/2013 09:00
Client: ARSL001
Method: SW846 8270C
Inst: MSD8.I
Analyst: RMB
Aliquot: 1000 mL
Column: DB-5ms

Matrix: W
Project: ESHL00210
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

Client ID: CAPA-13-29667
Batch ID: 1298462
Run Date: 05/01/2013 23:23
Prep Date: 05/01/2013 09:00
Data File: s050113a.B\s8E0127.D

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	80.9	100	ug/L 80.9	(26%-129%)
2-Fluorobiphenyl	32.4	50.0	ug/L 64.7	(32%-102%)
2-Fluorophenol	44.3	100	ug/L 44.3	(10%-78%)
Nitrobenzene-d5	37.4	50.0	ug/L 74.9	(36%-125%)
Phenol-d5	29.7	100	ug/L 29.7	(10%-104%)
p-Terphenyl-d14	38.4	50.0	ug/L 76.9	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	unknown	2.08	7.24	ug/L	0	J
	Trichloromethane	2.176	43.3	ug/L	94	NJ
	unknown	2.422	48	ug/L	0	J
	unknown	2.459	10.6	ug/L	0	J
	unknown	2.529	140	ug/L	0	J
	unknown	3.647	6.5	ug/L	0	J
	unknown	4.059	6.07	ug/L	0	J
000149-57-5	Hexanoic acid, 2-ethyl-	7.006	6.52	ug/L	86	NJ

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671002

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29650

Batch ID: 1298462

Run Date: 05/02/2013 00:58

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0130.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 900 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	11.1	ug/L	3.33	11.1
110-86-1	Pyridine	U	11.1	ug/L	3.33	11.1
62-53-3	Aniline	U	11.1	ug/L	3.33	11.1
108-95-2	Phenol	U	11.1	ug/L	3.33	11.1
111-44-4	bis(2-Chloroethyl) ether	U	11.1	ug/L	3.33	11.1
95-57-8	2-Chlorophenol	U	11.1	ug/L	3.33	11.1
541-73-1	1,3-Dichlorobenzene	U	11.1	ug/L	3.33	11.1
106-46-7	1,4-Dichlorobenzene	U	11.1	ug/L	3.33	11.1
95-50-1	1,2-Dichlorobenzene	U	11.1	ug/L	3.33	11.1
39638-32-9	bis(2-Chloroisopropyl)ether	U	11.1	ug/L	3.33	11.1
100-51-6	Benzyl alcohol	U	11.1	ug/L	3.33	11.1
95-48-7	o-Cresol	U	11.1	ug/L	3.33	11.1
65794-96-9	m,p-Cresols	U	11.1	ug/L	3.33	11.1
621-64-7	N-Nitrosodi--n-propylamine	U	11.1	ug/L	3.33	11.1
	<i>N-Nitrosodipropylamine</i>					
67-72-1	Hexachloroethane	U	11.1	ug/L	3.33	11.1
98-95-3	Nitrobenzene	U	11.1	ug/L	3.33	11.1
78-59-1	Isophorone	U	11.1	ug/L	3.33	11.1
88-75-5	2-Nitrophenol	U	11.1	ug/L	3.33	11.1
105-67-9	2,4-Dimethylphenol	U	11.1	ug/L	3.33	11.1
111-91-1	bis(2-Chloroethoxy)methane	U	11.1	ug/L	3.33	11.1
120-83-2	2,4-Dichlorophenol	U	11.1	ug/L	3.33	11.1
65-85-0	Benzoic acid	U	22.2	ug/L	6.67	22.2
106-47-8	4-Chloroaniline	U	11.1	ug/L	3.67	11.1
87-68-3	Hexachlorobutadiene	U	11.1	ug/L	3.33	11.1
59-50-7	Parachlorometa cresol	U	11.1	ug/L	3.33	11.1
	<i>4-Chloro-3-methylphenol</i>					
91-57-6	2-Methylnaphthalene	U	1.11	ug/L	0.333	1.11
91-20-3	Naphthalene	U	1.11	ug/L	0.333	1.11
90-12-0	1-Methylnaphthalene	U	1.11	ug/L	0.333	1.11
77-47-4	Hexachlorocyclopentadiene	U	11.1	ug/L	3.33	11.1
88-06-2	2,4,6-Trichlorophenol	U	11.1	ug/L	3.33	11.1
95-95-4	2,4,5-Trichlorophenol	U	11.1	ug/L	3.33	11.1
91-58-7	2-Chloronaphthalene	U	1.11	ug/L	0.333	1.11
88-74-4	2-Nitroaniline	U	11.1	ug/L	3.33	11.1
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline	U	11.1	ug/L	3.33	11.1
	<i>m-Nitroaniline</i>					
131-11-3	Dimethylphthalate	U	11.1	ug/L	3.33	11.1
606-20-2	2,6-Dinitrotoluene	U	11.1	ug/L	3.33	11.1

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2013-778

Lab Sample ID: 324671002

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Method: SW846 8270C

SOP Ref: GL-OA-E-009

Inst: MSD8.I

Dilution: 1

Batch ID: 1298462

Run Date: 05/02/2013 00:58

Analyst: RMB

Inj. Vol: 1 uL

Prep Date: 05/01/2013 09:00

Aliquot: 900 mL

Final Volume: 1 mL

Data File: s050113a.B\s8E0130.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	11.1	ug/L	3.33	11.1
208-96-8	Acenaphthylene	U	1.11	ug/L	0.333	1.11
83-32-9	Acenaphthene	U	1.11	ug/L	0.333	1.11
51-28-5	2,4-Dinitrophenol	U	22.2	ug/L	5.56	22.2
132-64-9	Dibenzofuran	U	11.1	ug/L	3.33	11.1
58-90-2	2,3,4,6-Tetrachlorophenol	U	11.1	ug/L	3.33	11.1
84-66-2	Diethylphthalate	U	11.1	ug/L	3.33	11.1
100-02-7	4-Nitrophenol	U	11.1	ug/L	3.33	11.1
86-73-7	Fluorene	U	1.11	ug/L	0.333	1.11
7005-72-3	4-Chlorophenylphenylether	U	11.1	ug/L	3.33	11.1
100-01-6	4-Nitroaniline	U	11.1	ug/L	3.33	11.1
	<i>p</i> -Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	11.1	ug/L	3.33	11.1
122-39-4	Diphenylamine	U	11.1	ug/L	3.33	11.1
122-66-7	Azobenzene	U	11.1	ug/L	3.33	11.1
	<i>1,2</i> -Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	11.1	ug/L	3.33	11.1
118-74-1	Hexachlorobenzene	U	11.1	ug/L	3.33	11.1
87-86-5	Pentachlorophenol	U	11.1	ug/L	3.33	11.1
88-85-7	Dinoseb	U	11.1	ug/L	3.33	11.1
85-01-8	Phenanthrene	U	1.11	ug/L	0.333	1.11
120-12-7	Anthracene	U	1.11	ug/L	0.333	1.11
84-74-2	Di-n-butylphthalate	U	11.1	ug/L	3.33	11.1
206-44-0	Fluoranthene	U	1.11	ug/L	0.333	1.11
129-00-0	Pyrene	U	1.11	ug/L	0.333	1.11
85-68-7	Butylbenzylphthalate	U	11.1	ug/L	3.33	11.1
117-81-7	bis(2-Ethylhexyl)phthalate	U	11.1	ug/L	3.33	11.1
56-55-3	Benzo(a)anthracene	U	1.11	ug/L	0.333	1.11
218-01-9	Chrysene	U	1.11	ug/L	0.333	1.11
117-84-0	Di-n-octylphthalate	U	11.1	ug/L	3.33	11.1
205-99-2	Benzo(b)fluoranthene	U	1.11	ug/L	0.333	1.11
207-08-9	Benzo(k)fluoranthene	U	1.11	ug/L	0.333	1.11
50-32-8	Benzo(a)pyrene	U	1.11	ug/L	0.489	1.11
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.11	ug/L	0.333	1.11
53-70-3	Dibenzo(a,h)anthracene	U	1.11	ug/L	0.333	1.11
191-24-2	Benzo(ghi)perylene	U	1.11	ug/L	0.333	1.11
123-91-1	1,4-Dioxane	U	11.1	ug/L	3.33	11.1
55-18-5	N-Nitrosodiethylamine	U	11.1	ug/L	3.33	11.1
930-55-2	N-Nitrosopyrrolidine	U	11.1	ug/L	3.33	11.1

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778
Lab Sample ID: 324671002

Date Collected: 04/25/2013 12:41
Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29650
Batch ID: 1298462
Run Date: 05/02/2013 00:58
Prep Date: 05/01/2013 09:00
Data File: s050113a.B\s8E0130.D

Client: ARSL001
Method: SW846 8270C
Inst: MSD8.I
Analyst: RMB
Aliquot: 900 mL
Column: DB-5ms

Project: ESHL00210
SOP Ref: GL-OA-E-009
Dilution: 1
Inj. Vol: 1 uL
Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	11.1	ug/L	3.33	11.1
95-94-3	1,2,4,5-Tetrachlorobenzene	U	11.1	ug/L	3.33	11.1
608-93-5	Pentachlorobenzene	U	11.1	ug/L	3.33	11.1
1912-24-9	Atrazine	U	11.1	ug/L	3.33	11.1
92-87-5	Benzidine	U	11.1	ug/L	3.33	11.1
91-94-1	3,3'-Dichlorobenzidine	U	11.1	ug/L	3.33	11.1
120-82-1	1,2,4-Trichlorobenzene	U	11.1	ug/L	3.33	11.1

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	86.0	111	ug/L 77.4	(26%-129%)
2-Fluorobiphenyl	35.6	55.6	ug/L 64.2	(32%-102%)
2-Fluorophenol	51.3	111	ug/L 46.2	(10%-78%)
Nitrobenzene-d5	43.0	55.6	ug/L 77.3	(36%-125%)
Phenol-d5	35.4	111	ug/L 31.9	(10%-104%)
p-Terphenyl-d14	37.8	55.6	ug/L 68.0	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	unknown	2.079	8.76	ug/L	0	J
	Trichloromethane	2.176	52	ug/L	94	NJ
	unknown	2.422	54.1	ug/L	0	J
	unknown	2.459	11.8	ug/L	0	J
	unknown	2.529	151	ug/L	0	J
	unknown	2.577	26.9	ug/L	0	J
	unknown	3.646	7.46	ug/L	0	J
	unknown	4.064	7.24	ug/L	0	J

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671003

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29651

Batch ID: 1298462

Run Date: 05/02/2013 01:30

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0131.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 920 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.9	ug/L	3.26	10.9
110-86-1	Pyridine	U	10.9	ug/L	3.26	10.9
62-53-3	Aniline	U	10.9	ug/L	3.26	10.9
108-95-2	Phenol	U	10.9	ug/L	3.26	10.9
111-44-4	bis(2-Chloroethyl) ether	U	10.9	ug/L	3.26	10.9
95-57-8	2-Chlorophenol	U	10.9	ug/L	3.26	10.9
541-73-1	1,3-Dichlorobenzene	U	10.9	ug/L	3.26	10.9
106-46-7	1,4-Dichlorobenzene	U	10.9	ug/L	3.26	10.9
95-50-1	1,2-Dichlorobenzene	U	10.9	ug/L	3.26	10.9
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.9	ug/L	3.26	10.9
100-51-6	Benzyl alcohol	U	10.9	ug/L	3.26	10.9
95-48-7	o-Cresol	U	10.9	ug/L	3.26	10.9
65794-96-9	m,p-Cresols	U	10.9	ug/L	3.26	10.9
621-64-7	N-Nitrosodi--n-propylamine	U	10.9	ug/L	3.26	10.9
	<i>N-Nitrosodipropylamine</i>					
67-72-1	Hexachloroethane	U	10.9	ug/L	3.26	10.9
98-95-3	Nitrobenzene	U	10.9	ug/L	3.26	10.9
78-59-1	Isophorone	U	10.9	ug/L	3.26	10.9
88-75-5	2-Nitrophenol	U	10.9	ug/L	3.26	10.9
105-67-9	2,4-Dimethylphenol	U	10.9	ug/L	3.26	10.9
111-91-1	bis(2-Chloroethoxy)methane	U	10.9	ug/L	3.26	10.9
120-83-2	2,4-Dichlorophenol	U	10.9	ug/L	3.26	10.9
65-85-0	Benzoic acid	U	21.7	ug/L	6.52	21.7
106-47-8	4-Chloroaniline	U	10.9	ug/L	3.59	10.9
87-68-3	Hexachlorobutadiene	U	10.9	ug/L	3.26	10.9
59-50-7	Parachlorometa cresol	U	10.9	ug/L	3.26	10.9
	<i>4-Chloro-3-methylphenol</i>					
91-57-6	2-Methylnaphthalene	U	1.09	ug/L	0.326	1.09
91-20-3	Naphthalene	U	1.09	ug/L	0.326	1.09
90-12-0	1-Methylnaphthalene	U	1.09	ug/L	0.326	1.09
77-47-4	Hexachlorocyclopentadiene	U	10.9	ug/L	3.26	10.9
88-06-2	2,4,6-Trichlorophenol	U	10.9	ug/L	3.26	10.9
95-95-4	2,4,5-Trichlorophenol	U	10.9	ug/L	3.26	10.9
91-58-7	2-Chloronaphthalene	U	1.09	ug/L	0.326	1.09
88-74-4	2-Nitroaniline	U	10.9	ug/L	3.26	10.9
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline	U	10.9	ug/L	3.26	10.9
	<i>m-Nitroaniline</i>					
131-11-3	Dimethylphthalate	U	10.9	ug/L	3.26	10.9
606-20-2	2,6-Dinitrotoluene	U	10.9	ug/L	3.26	10.9

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671003

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29651

Batch ID: 1298462

Run Date: 05/02/2013 01:30

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0131.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 920 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.9	ug/L	3.26	10.9
208-96-8	Acenaphthylene	U	1.09	ug/L	0.326	1.09
83-32-9	Acenaphthene	U	1.09	ug/L	0.326	1.09
51-28-5	2,4-Dinitrophenol	U	21.7	ug/L	5.43	21.7
132-64-9	Dibenzofuran	U	10.9	ug/L	3.26	10.9
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.9	ug/L	3.26	10.9
84-66-2	Diethylphthalate	U	10.9	ug/L	3.26	10.9
100-02-7	4-Nitrophenol	U	10.9	ug/L	3.26	10.9
86-73-7	Fluorene	U	1.09	ug/L	0.326	1.09
7005-72-3	4-Chlorophenylphenylether	U	10.9	ug/L	3.26	10.9
100-01-6	4-Nitroaniline	U	10.9	ug/L	3.26	10.9
	<i>p</i> -Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.9	ug/L	3.26	10.9
122-39-4	Diphenylamine	U	10.9	ug/L	3.26	10.9
122-66-7	Azobenzene	U	10.9	ug/L	3.26	10.9
	<i>1,2-Diphenylhydrazine</i>					
101-55-3	4-Bromophenylphenylether	U	10.9	ug/L	3.26	10.9
118-74-1	Hexachlorobenzene	U	10.9	ug/L	3.26	10.9
87-86-5	Pentachlorophenol	U	10.9	ug/L	3.26	10.9
88-85-7	Dinoseb	U	10.9	ug/L	3.26	10.9
85-01-8	Phenanthrene	U	1.09	ug/L	0.326	1.09
120-12-7	Anthracene	U	1.09	ug/L	0.326	1.09
84-74-2	Di-n-butylphthalate	U	10.9	ug/L	3.26	10.9
206-44-0	Fluoranthene	U	1.09	ug/L	0.326	1.09
129-00-0	Pyrene	U	1.09	ug/L	0.326	1.09
85-68-7	Butylbenzylphthalate	U	10.9	ug/L	3.26	10.9
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.9	ug/L	3.26	10.9
56-55-3	Benzo(a)anthracene	U	1.09	ug/L	0.326	1.09
218-01-9	Chrysene	U	1.09	ug/L	0.326	1.09
117-84-0	Di-n-octylphthalate	U	10.9	ug/L	3.26	10.9
205-99-2	Benzo(b)fluoranthene	U	1.09	ug/L	0.326	1.09
207-08-9	Benzo(k)fluoranthene	U	1.09	ug/L	0.326	1.09
50-32-8	Benzo(a)pyrene	U	1.09	ug/L	0.478	1.09
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.09	ug/L	0.326	1.09
53-70-3	Dibenzo(a,h)anthracene	U	1.09	ug/L	0.326	1.09
191-24-2	Benzo(ghi)perylene	U	1.09	ug/L	0.326	1.09
123-91-1	1,4-Dioxane	U	10.9	ug/L	3.26	10.9
55-18-5	N-Nitrosodiethylamine	U	10.9	ug/L	3.26	10.9
930-55-2	N-Nitrosopyrrolidine	U	10.9	ug/L	3.26	10.9

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2013-778

Lab Sample ID: 324671003

Date Collected: 04/25/2013 12:41

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Method: SW846 8270C

SOP Ref: GL-OA-E-009

Batch ID: 1298462

Inst: MSD8.I

Dilution: 1

Run Date: 05/02/2013 01:30

Analyst: RMB

Inj. Vol: 1 uL

Prep Date: 05/01/2013 09:00

Aliquot: 920 mL

Final Volume: 1 mL

Data File: s050113a.B\s8E0131.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.9	ug/L	3.26	10.9
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.9	ug/L	3.26	10.9
608-93-5	Pentachlorobenzene	U	10.9	ug/L	3.26	10.9
1912-24-9	Atrazine	U	10.9	ug/L	3.26	10.9
92-87-5	Benzidine	U	10.9	ug/L	3.26	10.9
91-94-1	3,3'-Dichlorobenzidine	U	10.9	ug/L	3.26	10.9
120-82-1	1,2,4-Trichlorobenzene	U	10.9	ug/L	3.26	10.9

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	83.7	109	ug/L 77.0	(26%-129%)
2-Fluorobiphenyl	34.6	54.3	ug/L 63.6	(32%-102%)
2-Fluorophenol	46.3	109	ug/L 42.6	(10%-78%)
Nitrobenzene-d5	38.8	54.3	ug/L 71.3	(36%-125%)
Phenol-d5	31.7	109	ug/L 29.2	(10%-104%)
p-Terphenyl-d14	40.4	54.3	ug/L 74.3	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.074	7.5	ug/L	0	J
000067-66-3	Trichloromethane	2.16	53.2	ug/L	94	NJ
	unknown	2.416	46	ug/L	0	J
	unknown	2.523	140	ug/L	0	J
	unknown	3.641	6.83	ug/L	0	J
	unknown	4.058	6.68	ug/L	0	J
000149-57-5	Hexanoic acid, 2-ethyl-	7	5.62	ug/L	86	NJ

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671004

Date Collected: 04/25/2013 15:40

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29653

Batch ID: 1298462

Run Date: 05/02/2013 02:02

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0132.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 930 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.8	ug/L	3.23	10.8
110-86-1	Pyridine	U	10.8	ug/L	3.23	10.8
62-53-3	Aniline	U	10.8	ug/L	3.23	10.8
108-95-2	Phenol	U	10.8	ug/L	3.23	10.8
111-44-4	bis(2-Chloroethyl) ether	U	10.8	ug/L	3.23	10.8
95-57-8	2-Chlorophenol	U	10.8	ug/L	3.23	10.8
541-73-1	1,3-Dichlorobenzene	U	10.8	ug/L	3.23	10.8
106-46-7	1,4-Dichlorobenzene	U	10.8	ug/L	3.23	10.8
95-50-1	1,2-Dichlorobenzene	U	10.8	ug/L	3.23	10.8
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.8	ug/L	3.23	10.8
100-51-6	Benzyl alcohol	U	10.8	ug/L	3.23	10.8
95-48-7	o-Cresol	U	10.8	ug/L	3.23	10.8
65794-96-9	m,p-Cresols	U	10.8	ug/L	3.23	10.8
621-64-7	N-Nitrosodi--n-propylamine	U	10.8	ug/L	3.23	10.8
	<i>N-Nitrosodipropylamine</i>					
67-72-1	Hexachloroethane	U	10.8	ug/L	3.23	10.8
98-95-3	Nitrobenzene	U	10.8	ug/L	3.23	10.8
78-59-1	Isophorone	U	10.8	ug/L	3.23	10.8
88-75-5	2-Nitrophenol	U	10.8	ug/L	3.23	10.8
105-67-9	2,4-Dimethylphenol	U	10.8	ug/L	3.23	10.8
111-91-1	bis(2-Chloroethoxy)methane	U	10.8	ug/L	3.23	10.8
120-83-2	2,4-Dichlorophenol	U	10.8	ug/L	3.23	10.8
65-85-0	Benzoic acid	U	21.5	ug/L	6.45	21.5
106-47-8	4-Chloroaniline	U	10.8	ug/L	3.55	10.8
87-68-3	Hexachlorobutadiene	U	10.8	ug/L	3.23	10.8
59-50-7	Parachlorometa cresol	U	10.8	ug/L	3.23	10.8
	<i>4-Chloro-3-methylphenol</i>					
91-57-6	2-Methylnaphthalene	U	1.08	ug/L	0.323	1.08
91-20-3	Naphthalene	U	1.08	ug/L	0.323	1.08
90-12-0	1-Methylnaphthalene	U	1.08	ug/L	0.323	1.08
77-47-4	Hexachlorocyclopentadiene	U	10.8	ug/L	3.23	10.8
88-06-2	2,4,6-Trichlorophenol	U	10.8	ug/L	3.23	10.8
95-95-4	2,4,5-Trichlorophenol	U	10.8	ug/L	3.23	10.8
91-58-7	2-Chloronaphthalene	U	1.08	ug/L	0.323	1.08
88-74-4	2-Nitroaniline	U	10.8	ug/L	3.23	10.8
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline	U	10.8	ug/L	3.23	10.8
	<i>m-Nitroaniline</i>					
131-11-3	Dimethylphthalate	U	10.8	ug/L	3.23	10.8
606-20-2	2,6-Dinitrotoluene	U	10.8	ug/L	3.23	10.8

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671004

Date Collected: 04/25/2013 15:40

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29653

Batch ID: 1298462

Run Date: 05/02/2013 02:02

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0132.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 930 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.8	ug/L	3.23	10.8
208-96-8	Acenaphthylene	U	1.08	ug/L	0.323	1.08
83-32-9	Acenaphthene	U	1.08	ug/L	0.323	1.08
51-28-5	2,4-Dinitrophenol	U	21.5	ug/L	5.38	21.5
132-64-9	Dibenzofuran	U	10.8	ug/L	3.23	10.8
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.8	ug/L	3.23	10.8
84-66-2	Diethylphthalate	U	10.8	ug/L	3.23	10.8
100-02-7	4-Nitrophenol	U	10.8	ug/L	3.23	10.8
86-73-7	Fluorene	U	1.08	ug/L	0.323	1.08
7005-72-3	4-Chlorophenylphenylether	U	10.8	ug/L	3.23	10.8
100-01-6	4-Nitroaniline	U	10.8	ug/L	3.23	10.8
	<i>p</i> -Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.8	ug/L	3.23	10.8
122-39-4	Diphenylamine	U	10.8	ug/L	3.23	10.8
122-66-7	Azobenzene	U	10.8	ug/L	3.23	10.8
	<i>1,2-Diphenylhydrazine</i>					
101-55-3	4-Bromophenylphenylether	U	10.8	ug/L	3.23	10.8
118-74-1	Hexachlorobenzene	U	10.8	ug/L	3.23	10.8
87-86-5	Pentachlorophenol	U	10.8	ug/L	3.23	10.8
88-85-7	Dinoseb	U	10.8	ug/L	3.23	10.8
85-01-8	Phenanthrene	U	1.08	ug/L	0.323	1.08
120-12-7	Anthracene	U	1.08	ug/L	0.323	1.08
84-74-2	Di-n-butylphthalate	U	10.8	ug/L	3.23	10.8
206-44-0	Fluoranthene	U	1.08	ug/L	0.323	1.08
129-00-0	Pyrene	U	1.08	ug/L	0.323	1.08
85-68-7	Butylbenzylphthalate	U	10.8	ug/L	3.23	10.8
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.8	ug/L	3.23	10.8
56-55-3	Benzo(a)anthracene	U	1.08	ug/L	0.323	1.08
218-01-9	Chrysene	U	1.08	ug/L	0.323	1.08
117-84-0	Di-n-octylphthalate	U	10.8	ug/L	3.23	10.8
205-99-2	Benzo(b)fluoranthene	U	1.08	ug/L	0.323	1.08
207-08-9	Benzo(k)fluoranthene	U	1.08	ug/L	0.323	1.08
50-32-8	Benzo(a)pyrene	U	1.08	ug/L	0.473	1.08
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.08	ug/L	0.323	1.08
53-70-3	Dibenzo(a,h)anthracene	U	1.08	ug/L	0.323	1.08
191-24-2	Benzo(ghi)perylene	U	1.08	ug/L	0.323	1.08
123-91-1	1,4-Dioxane	U	10.8	ug/L	3.23	10.8
55-18-5	N-Nitrosodiethylamine	U	10.8	ug/L	3.23	10.8
930-55-2	N-Nitrosopyrrolidine	U	10.8	ug/L	3.23	10.8

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671004

Date Collected: 04/25/2013 15:40

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Method: SW846 8270C

SOP Ref: GL-OA-E-009

Inst: MSD8.I

Dilution: 1

Batch ID: 1298462

Run Date: 05/02/2013 02:02

Analyst: RMB

Inj. Vol: 1 uL

Prep Date: 05/01/2013 09:00

Aliquot: 930 mL

Final Volume: 1 mL

Data File: s050113a.B\s8E0132.D

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.8	ug/L	3.23	10.8
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.8	ug/L	3.23	10.8
608-93-5	Pentachlorobenzene	U	10.8	ug/L	3.23	10.8
1912-24-9	Atrazine	U	10.8	ug/L	3.23	10.8
92-87-5	Benzidine	U	10.8	ug/L	3.23	10.8
91-94-1	3,3'-Dichlorobenzidine	U	10.8	ug/L	3.23	10.8
120-82-1	1,2,4-Trichlorobenzene	U	10.8	ug/L	3.23	10.8

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	79.2	108	ug/L 73.7	(26%-129%)
2-Fluorobiphenyl	32.8	53.8	ug/L 61.0	(32%-102%)
2-Fluorophenol	40.9	108	ug/L 38.0	(10%-78%)
Nitrobenzene-d5	37.7	53.8	ug/L 70.1	(36%-125%)
Phenol-d5	27.1	108	ug/L 25.2	(10%-104%)
p-Terphenyl-d14	41.2	53.8	ug/L 76.7	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.079	6.41	ug/L	0	J
000067-66-3	Trichloromethane	2.17	41.8	ug/L	94	NJ
	unknown	2.422	41.8	ug/L	0	J
	unknown	2.454	10.9	ug/L	0	J
	unknown	2.529	117	ug/L	0	J
	unknown	3.646	6.01	ug/L	0	J
	unknown	4.058	5.77	ug/L	0	J

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671005

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29668

Batch ID: 1298462

Run Date: 05/02/2013 02:33

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0133.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 940 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

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

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778

Lab Sample ID: 324671005

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client ID: CAPA-13-29668

Batch ID: 1298462

Run Date: 05/02/2013 02:33

Prep Date: 05/01/2013 09:00

Data File: s050113a.B\s8E0133.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 940 mL

Column: DB-5ms

Project: ESHL00210

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

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

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2013-778

Lab Sample ID: 324671005

Date Collected: 04/25/2013 14:18

Date Received: 04/27/2013 09:00

Matrix: W

Client: ARSL001

Project: ESHL00210

Method: SW846 8270C

SOP Ref: GL-OA-E-009

Inst: MSD8.I

Dilution: 1

Batch ID: 1298462

Run Date: 05/02/2013 02:33

Analyst: RMB

Inj. Vol: 1 uL

Prep Date: 05/01/2013 09:00

Aliquot: 940 mL

Final Volume: 1 mL

Data File: s050113a.B\s8E0133.D

Column: DB-5ms

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

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	79.6	106	ug/L 74.9	(26%-129%)
2-Fluorobiphenyl	33.4	53.2	ug/L 62.8	(32%-102%)
2-Fluorophenol	48.0	106	ug/L 45.1	(10%-78%)
Nitrobenzene-d5	39.2	53.2	ug/L 73.7	(36%-125%)
Phenol-d5	32.1	106	ug/L 30.2	(10%-104%)
p-Terphenyl-d14	38.8	53.2	ug/L 72.9	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.074	8.2	ug/L	0	J
000067-66-3	Trichloromethane	2.17	53.9	ug/L	94	NJ
	unknown	2.416	48.6	ug/L	0	J
	unknown	2.454	14.6	ug/L	0	J
	unknown	2.523	145	ug/L	0	J
	unknown	2.577	37.2	ug/L	0	J
	unknown	3.646	6.81	ug/L	0	J
	unknown	4.058	6.61	ug/L	0	J

Quality Control Summary

Semi-Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2013-778

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202867361	MB for batch 1298461	54	36	94	68	97	105
1202867362	LCS for batch 1298461	49	34	81	72	100	81
324671001	CAPA-13-29667	44	30	75	65	81	77
1202867363	CAPA-13-29667MS	68	59	87	72	99	80
1202867364	CAPA-13-29667MSD	59	51	69	64	89	75
324671002	CAPA-13-29650	46	32	77	64	77	68
324671003	CAPA-13-29651	43	29	71	64	77	74
324671004	CAPA-13-29653	38	25	70	61	74	77
324671005	CAPA-13-29668	45	30	74	63	75	73

Surrogate**Acceptance Limits**

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

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1298461

Matrix: WATER

Lab Sample ID: 1202867362

Instrument: MSD8.I

Analysis Date: 05/01/2013 19:44

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	24.7	49	18-75
110-86-1	LCS Pyridine	50.0	0.0	32.2	64	11-88
62-53-3	LCS Aniline	50.0	0.0	47.3	95	35-107
108-95-2	LCS Phenol	50.0	0.0	18.0	36	13-77
111-44-4	LCS bis(2-Chloroethyl) ether	50.0	0.0	41.6	83	35-111
95-57-8	LCS 2-Chlorophenol	50.0	0.0	41.5	83	39-99
541-73-1	LCS 1,3-Dichlorobenzene	50.0	0.0	28.9	58	25-100
106-46-7	LCS 1,4-Dichlorobenzene	50.0	0.0	30.0	60	24-88
95-50-1	LCS 1,2-Dichlorobenzene	50.0	0.0	29.9	60	27-87
39638-32-9	LCS bis(2-Chloroisopropyl)ether	50.0	0.0	35.6	71	23-120
100-51-6	LCS Benzyl alcohol	50.0	0.0	38.8	78	33-90
95-48-7	LCS o-Cresol	50.0	0.0	37.3	75	32-90
65794-96-9	LCS m,p-Cresols	50.0	0.0	40.1	80	28-100
621-64-7	LCS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	50.0	0.0	42.4	85	39-113
67-72-1	LCS Hexachloroethane	50.0	0.0	29.7	59	20-85
98-95-3	LCS Nitrobenzene	50.0	0.0	39.1	78	41-119
78-59-1	LCS Isophorone	50.0	0.0	42.0	84	49-133
88-75-5	LCS 2-Nitrophenol	50.0	0.0	37.8	76	42-111
105-67-9	LCS 2,4-Dimethylphenol	50.0	0.0	38.5	77	43-99
111-91-1	LCS bis(2-Chloroethoxy)methane	50.0	0.0	43.1	86	44-109
120-83-2	LCS 2,4-Dichlorophenol	50.0	0.0	40.1	80	45-106
65-85-0	LCS Benzoic acid	100	0.0	35.3	35	10-81

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1298461

Matrix: WATER

Lab Sample ID: 1202867362

Instrument: MSD8.I

Analysis Date: 05/01/2013 19:44

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	50.5	101	50-122
87-68-3	LCS Hexachlorobutadiene	50.0	0.0	27.8	56	19-92
59-50-7	LCS Parachlorometa cresol 4-Chloro-3-methylphenol	50.0	0.0	41.8	84	46-111
91-57-6	LCS 2-Methylnaphthalene	50.0	0.0	31.3	63	33-102
91-20-3	LCS Naphthalene	50.0	0.0	32.1	64	31-98
90-12-0	LCS 1-Methylnaphthalene	50.0	0.0	33.3	67	35-106
77-47-4	LCS Hexachlorocyclopentadiene	50.0	0.0	24.3	49	15-72
88-06-2	LCS 2,4,6-Trichlorophenol	50.0	0.0	43.2	86	41-109
95-95-4	LCS 2,4,5-Trichlorophenol	50.0	0.0	47.3	95	41-111
91-58-7	LCS 2-Chloronaphthalene	50.0	0.0	36.9	74	36-98
88-74-4	LCS 2-Nitroaniline o-Nitroaniline	50.0	0.0	46.9	94	44-117
99-09-2	LCS 3-Nitroaniline m-Nitroaniline	50.0	0.0	60.1	120	45-124
131-11-3	LCS Dimethylphthalate	50.0	0.0	45.7	91	53-112
606-20-2	LCS 2,6-Dinitrotoluene	50.0	0.0	43.9	88	52-117
121-14-2	LCS 2,4-Dinitrotoluene	50.0	0.0	45.4	91	45-124
208-96-8	LCS Acenaphthylene	50.0	0.0	40.2	80	37-107
83-32-9	LCS Acenaphthene	50.0	0.0	38.2	76	40-104
51-28-5	LCS 2,4-Dinitrophenol	50.0	0.0	33.9	68	19-110
132-64-9	LCS Dibenzofuran	50.0	0.0	42.0	84	45-107
58-90-2	LCS 2,3,4,6-Tetrachlorophenol	50.0	0.0	47.4	95	45-120
84-66-2	LCS Diethylphthalate	50.0	0.0	45.6	91	51-116
100-02-7	LCS 4-Nitrophenol	50.0	0.0	24.3	49	16-77

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1298461

Matrix: WATER

Lab Sample ID: 1202867362

Instrument: MSD8.I

Analysis Date: 05/01/2013 19:44

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	43.2	86	43-110
7005-72-3	LCS 4-Chlorophenylphenylether	50.0	0.0	44.4	89	40-114
100-01-6	LCS 4-Nitroaniline <i>p-Nitroaniline</i>	50.0	0.0	77.7	155 *	38-133
534-52-1	LCS 2-Methyl-4,6-dinitrophenol	50.0	0.0	49.9	100	34-114
122-39-4	LCS Diphenylamine	50.0	0.0	41.9	84	47-111
122-66-7	LCS Azobenzene <i>1,2-Diphenylhydrazine</i>	50.0	0.0	41.7	83	40-112
101-55-3	LCS 4-Bromophenylphenylether	50.0	0.0	45.1	90	41-113
118-74-1	LCS Hexachlorobenzene	50.0	0.0	43.6	87	43-116
87-86-5	LCS Pentachlorophenol	50.0	0.0	40.0	80	27-102
85-01-8	LCS Phenanthrene	50.0	0.0	41.6	83	47-111
120-12-7	LCS Anthracene	50.0	0.0	41.8	84	46-110
84-74-2	LCS Di-n-butylphthalate	50.0	0.0	42.8	86	49-116
206-44-0	LCS Fluoranthene	50.0	0.0	42.1	84	45-118
129-00-0	LCS Pyrene	50.0	0.0	34.9	70	38-127
85-68-7	LCS Butylbenzylphthalate	50.0	0.0	36.2	72	40-122
117-81-7	LCS bis(2-Ethylhexyl)phthalate	50.0	0.0	36.9	74	37-124
56-55-3	LCS Benzo(a)anthracene	50.0	0.0	41.1	82	49-111
218-01-9	LCS Chrysene	50.0	0.0	42.2	84	44-117
117-84-0	LCS Di-n-octylphthalate	50.0	0.0	39.1	78	33-122
205-99-2	LCS Benzo(b)fluoranthene	50.0	0.0	41.1	82	47-117
207-08-9	LCS Benzo(k)fluoranthene	50.0	0.0	42.9	86	46-119
50-32-8	LCS Benzo(a)pyrene	50.0	0.0	40.9	82	47-110

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1298461

Matrix: WATER

Lab Sample ID: 1202867362

Instrument: MSD8.I

Analysis Date: 05/01/2013 19:44

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	44.8	90	37-125
53-70-3	LCS Dibenzo(a,h)anthracene	50.0	0.0	46.6	93	36-125
191-24-2	LCS Benzo(ghi)perylene	50.0	0.0	42.3	85	33-126
123-91-1	LCS 1,4-Dioxane	50.0	0.0	25.6	51	26-73
930-55-2	LCS N-Nitrosopyrrolidine	50.0	0.0	40.8	82	42-106
95-94-3	LCS 1,2,4,5-Tetrachlorobenzene	50.0	0.0	34.7	69	36-95
1912-24-9	LCS Atrazine	50.0	0.0	32.9	66	47-115
92-87-5	LCS Benzidine	100	0.0	102	102	10-124
91-94-1	LCS 3,3'-Dichlorobenzidine	50.0	0.0	47.2	94	31-113
120-82-1	LCS 1,2,4-Trichlorobenzene	50.0	0.0	28.7	57	26-92

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Matrix Spike

Client ID: CAPA-13-29667MS

Matrix: W

Lab Sample ID: 1202867363

Instrument: MSD8.I

Analysis Date: 05/01/2013 23:55

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	123	0.00 U	82.0	66	21-88
110-86-1	MS Pyridine	123	0.00 U	110	89	14-94
62-53-3	MS Aniline	123	0.00 U	121	98	24-109
108-95-2	MS Phenol	123	0.00 U	76.3	62	10-88
111-44-4	MS bis(2-Chloroethyl) ether	123	0.00 U	97.1	79	25-114
95-57-8	MS 2-Chlorophenol	123	0.00 U	101	82	31-103
541-73-1	MS 1,3-Dichlorobenzene	123	0.00 U	56.4	46	18-83
106-46-7	MS 1,4-Dichlorobenzene	123	0.00 U	57.5	47	20-86
95-50-1	MS 1,2-Dichlorobenzene	123	0.00 U	59.1	48	21-85
39638-32-9	MS bis(2-Chloroisopropyl)ether	123	0.00 U	84.1	68	16-121
100-51-6	MS Benzyl alcohol	123	0.00 U	105	85	31-100
95-48-7	MS o-Cresol	123	0.00 U	99.1	80	26-97
65794-96-9	MS m,p-Cresols	123	0.00 U	117	95	24-110
621-64-7	MS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	123	0.00 U	99.9	81	29-116
67-72-1	MS Hexachloroethane	123	0.00 U	55.3	45	17-82
98-95-3	MS Nitrobenzene	123	0.00 U	103	83	32-126
78-59-1	MS Isophorone	123	0.00 U	111	90	36-139
88-75-5	MS 2-Nitrophenol	123	0.00 U	103	84	29-117
105-67-9	MS 2,4-Dimethylphenol	123	0.00 U	102	83	28-107
111-91-1	MS bis(2-Chloroethoxy)methane	123	0.00 U	113	91	34-112
120-83-2	MS 2,4-Dichlorophenol	123	0.00 U	105	85	34-111
65-85-0	MS Benzoic acid	247	0.00 U	169	68	10-105

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Matrix Spike

Client ID: CAPA-13-29667MS

Matrix: W

Lab Sample ID: 1202867363

Instrument: MSD8.I

Analysis Date: 05/01/2013 23:55

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS 4-Chloroaniline	123	0.00 U	140	113	28-123
87-68-3	MS Hexachlorobutadiene	123	0.00 U	58.9	48	11-97
59-50-7	MS Parachlorometa cresol 4-Chloro-3-methylphenol	123	0.00 U	111	90	31-119
91-57-6	MS 2-Methylnaphthalene	123	0.00 U	79.9	65	26-103
91-20-3	MS Naphthalene	123	0.00 U	81.1	66	25-100
90-12-0	MS 1-Methylnaphthalene	123	0.00 U	86.3	70	27-107
77-47-4	MS Hexachlorocyclopentadiene	123	0.00 U	56.2	46	14-73
88-06-2	MS 2,4,6-Trichlorophenol	123	0.00 U	105	85	31-113
95-95-4	MS 2,4,5-Trichlorophenol	123	0.00 U	113	92	30-117
91-58-7	MS 2-Chloronaphthalene	123	0.00 U	85.1	69	30-97
88-74-4	MS 2-Nitroaniline o-Nitroaniline	123	0.00 U	114	92	28-122
99-09-2	MS 3-Nitroaniline m-Nitroaniline	123	0.00 U	152	123	29-125
131-11-3	MS Dimethylphthalate	123	0.00 U	109	88	41-116
606-20-2	MS 2,6-Dinitrotoluene	123	0.00 U	103	84	40-123
121-14-2	MS 2,4-Dinitrotoluene	123	0.00 U	109	88	34-126
208-96-8	MS Acenaphthylene	123	0.00 U	94.0	76	33-104
83-32-9	MS Acenaphthene	123	0.00 U	87.2	71	31-103
51-28-5	MS 2,4-Dinitrophenol	123	0.00 U	96.9	79	17-110
132-64-9	MS Dibenzofuran	123	0.00 U	98.3	80	36-107
58-90-2	MS 2,3,4,6-Tetrachlorophenol	123	0.00 U	116	94	29-126
84-66-2	MS Diethylphthalate	123	0.00 U	107	86	41-117
100-02-7	MS 4-Nitrophenol	123	0.00 U	97.3	79 *	16-71

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Matrix Spike

Client ID: CAPA-13-29667MS

Matrix: W

Lab Sample ID: 1202867363

Instrument: MSD8.I

Analysis Date: 05/01/2013 23:55

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	123	0.00	U	99.7	81	32-111
7005-72-3	MS	4-Chlorophenylphenylether	123	0.00	U	103	83	30-112
100-01-6	MS	4-Nitroaniline <i>p</i> -Nitroaniline	123	0.00	U	198	160 *	25-133
534-52-1	MS	2-Methyl-4,6-dinitrophenol	123	0.00	U	125	102	22-118
122-39-4	MS	Diphenylamine	123	0.00	U	98.6	80	34-111
122-66-7	MS	Azobenzene <i>1,2-Diphenylhydrazine</i>	123	0.00	U	97.5	79	30-112
101-55-3	MS	4-Bromophenylphenylether	123	0.00	U	106	85	32-111
118-74-1	MS	Hexachlorobenzene	123	0.00	U	100	81	33-115
87-86-5	MS	Pentachlorophenol	123	0.00	U	102	83	19-112
85-01-8	MS	Phenanthrene	123	0.00	U	98.8	80	34-112
120-12-7	MS	Anthracene	123	0.00	U	99.2	80	33-108
84-74-2	MS	Di-n-butylphthalate	123	0.00	U	100	81	35-118
206-44-0	MS	Fluoranthene	123	0.00	U	100	81	31-118
129-00-0	MS	Pyrene	123	0.00	U	86.8	70	27-126
85-68-7	MS	Butylbenzylphthalate	123	0.00	U	88.7	72	29-121
117-81-7	MS	bis(2-Ethylhexyl)phthalate	123	0.00	U	91.6	74	29-120
56-55-3	MS	Benzo(a)anthracene	123	0.00	U	97.5	79	35-112
218-01-9	MS	Chrysene	123	0.00	U	100	81	32-116
117-84-0	MS	Di-n-octylphthalate	123	0.00	U	93.7	76	25-118
205-99-2	MS	Benzo(b)fluoranthene	123	0.00	U	96.4	78	34-116
207-08-9	MS	Benzo(k)fluoranthene	123	0.00	U	100	81	34-119
50-32-8	MS	Benzo(a)pyrene	123	0.00	U	97.5	79	34-110

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Matrix Spike

Client ID: CAPA-13-29667MS

Matrix: W

Lab Sample ID: 1202867363

Instrument: MSD8.I

Analysis Date: 05/01/2013 23:55

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	123	0.00 U	114	92	25-122
53-70-3	MS Dibenzo(a,h)anthracene	123	0.00 U	120	97	24-123
191-24-2	MS Benzo(ghi)perylene	123	0.00 U	111	90	22-122
123-91-1	MS 1,4-Dioxane	123	0.00 U	82.8	67	26-88
930-55-2	MS N-Nitrosopyrrolidine	123	0.00 U	106	85	42-110
95-94-3	MS 1,2,4,5-Tetrachlorobenzene	123	0.00 U	78.1	63	29-96
1912-24-9	MS Atrazine	123	0.00 U	75.0	61	33-121
92-87-5	MS Benzidine	247	0.00 U	372	151 *	10-117
91-94-1	MS 3,3'-Dichlorobenzidine	123	0.00 U	116	94	22-111
120-82-1	MS 1,2,4-Trichlorobenzene	123	0.00 U	67.5	55	20-90

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Matrix Spike Duplicate

Client ID: CAPA-13-29667MSD

Matrix: W

Lab Sample ID: 1202867364

Instrument: MSD8.I

Analysis Date: 05/02/2013 00:26

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	123	0.00	U	72.1	58	21-88	13	0-30
110-86-1	MSD Pyridine	123	0.00	U	97.9	79	14-94	12	0-30
62-53-3	MSD Aniline	123	0.00	U	108	87	24-109	12	0-30
108-95-2	MSD Phenol	123	0.00	U	65.3	53	10-88	16	0-30
111-44-4	MSD bis(2-Chloroethyl) ether	123	0.00	U	83.6	68	25-114	15	0-30
95-57-8	MSD 2-Chlorophenol	123	0.00	U	85.1	69	31-103	17	0-30
541-73-1	MSD 1,3-Dichlorobenzene	123	0.00	U	55.5	45	18-83	2	0-30
106-46-7	MSD 1,4-Dichlorobenzene	123	0.00	U	57.2	46	20-86	1	0-30
95-50-1	MSD 1,2-Dichlorobenzene	123	0.00	U	57.8	47	21-85	2	0-30
39638-32-9	MSD bis(2-Chloroisopropyl)ether	123	0.00	U	73.4	59	16-121	14	0-30
100-51-6	MSD Benzyl alcohol	123	0.00	U	90.2	73	31-100	15	0-30
95-48-7	MSD o-Cresol	123	0.00	U	84.1	68	26-97	16	0-30
65794-96-9	MSD m,p-Cresols	123	0.00	U	100	81	24-110	16	0-30
621-64-7	MSD N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i>	123	0.00	U	86.0	70	29-116	15	0-30
67-72-1	MSD Hexachloroethane	123	0.00	U	58.4	47	17-82	6	0-30
98-95-3	MSD Nitrobenzene	123	0.00	U	83.0	67	32-126	22	0-30
78-59-1	MSD Isophorone	123	0.00	U	87.2	71	36-139	24	0-30
88-75-5	MSD 2-Nitrophenol	123	0.00	U	82.2	67	29-117	23	0-30
105-67-9	MSD 2,4-Dimethylphenol	123	0.00	U	80.2	65	28-107	24	0-30
111-91-1	MSD bis(2-Chloroethoxy)methane	123	0.00	U	88.7	72	34-112	24	0-30
120-83-2	MSD 2,4-Dichlorophenol	123	0.00	U	82.9	67	34-111	23	0-30
65-85-0	MSD Benzoic acid	247	0.00	U	140	57	10-105	19	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2013-778

Sample Type: Matrix Spike Duplicate

Client ID: CAPA-13-29667MSD

Matrix: W

Lab Sample ID: 1202867364

Instrument: MSD8.I

Analysis Date: 05/02/2013 00:26

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	123	0.00 U	112	90	28-123	22	0-30
87-68-3	MSD Hexachlorobutadiene	123	0.00 U	55.1	45	11-97	7	0-30
59-50-7	MSD Parachlorometa cresol 4-Chloro-3-methylphenol	123	0.00 U	89.4	72	31-119	22	0-30
91-57-6	MSD 2-Methylnaphthalene	123	0.00 U	65.0	53	26-103	21	0-30
91-20-3	MSD Naphthalene	123	0.00 U	68.4	55	25-100	17	0-30
90-12-0	MSD 1-Methylnaphthalene	123	0.00 U	70.5	57	27-107	20	0-30
77-47-4	MSD Hexachlorocyclopentadiene	123	0.00 U	54.1	44	14-73	4	0-30
88-06-2	MSD 2,4,6-Trichlorophenol	123	0.00 U	93.1	75	31-113	12	0-30
95-95-4	MSD 2,4,5-Trichlorophenol	123	0.00 U	101	82	30-117	11	0-30
91-58-7	MSD 2-Chloronaphthalene	123	0.00 U	76.9	62	30-97	10	0-30
88-74-4	MSD 2-Nitroaniline o-Nitroaniline	123	0.00 U	101	82	28-122	12	0-30
99-09-2	MSD 3-Nitroaniline m-Nitroaniline	123	0.00 U	137	111	29-125	11	0-30
131-11-3	MSD Dimethylphthalate	123	0.00 U	99.5	81	41-116	9	0-30
606-20-2	MSD 2,6-Dinitrotoluene	123	0.00 U	95.2	77	40-123	8	0-30
121-14-2	MSD 2,4-Dinitrotoluene	123	0.00 U	98.6	80	34-126	10	0-30
208-96-8	MSD Acenaphthylene	123	0.00 U	84.7	69	33-104	10	0-30
83-32-9	MSD Acenaphthene	123	0.00 U	79.1	64	31-103	10	0-30
51-28-5	MSD 2,4-Dinitrophenol	123	0.00 U	85.9	70	17-110	12	0-30
132-64-9	MSD Dibenzofuran	123	0.00 U	88.5	72	36-107	11	0-30
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	123	0.00 U	107	87	29-126	8	0-30
84-66-2	MSD Diethylphthalate	123	0.00 U	100	81	41-117	6	0-30
100-02-7	MSD 4-Nitrophenol	123	0.00 U	87.2	71	16-71	11	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 7 of 8

SDG Number: 2013-778

Sample Type: Matrix Spike Duplicate

Client ID: CAPA-13-29667MSD

Matrix: W

Lab Sample ID: 1202867364

Instrument: MSD8.I

Analysis Date: 05/02/2013 00:26

Dilution: 1

Analyst: RMB

Prep Batch II 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	123	0.00 U	90.9	74	32-111	9	0-30
7005-72-3	MSD 4-Chlorophenylphenylether	123	0.00 U	94.7	77	30-112	8	0-30
100-01-6	MSD 4-Nitroaniline <i>p-Nitroaniline</i>	123	0.00 U	175	142 *	25-133	12	0-30
534-52-1	MSD 2-Methyl-4,6-dinitrophenol	123	0.00 U	115	93	22-118	9	0-30
122-39-4	MSD Diphenylamine	123	0.00 U	93.0	75	34-111	6	0-30
122-66-7	MSD Azobenzene <i>1,2-Diphenylhydrazine</i>	123	0.00 U	91.6	74	30-112	6	0-30
101-55-3	MSD 4-Bromophenylphenylether	123	0.00 U	99.1	80	32-111	6	0-30
118-74-1	MSD Hexachlorobenzene	123	0.00 U	95.8	78	33-115	4	0-30
87-86-5	MSD Pentachlorophenol	123	0.00 U	95.0	77	19-112	7	0-30
85-01-8	MSD Phenanthrene	123	0.00 U	91.0	74	34-112	8	0-30
120-12-7	MSD Anthracene	123	0.00 U	91.8	74	33-108	8	0-30
84-74-2	MSD Di-n-butylphthalate	123	0.00 U	96.3	78	35-118	4	0-30
206-44-0	MSD Fluoranthene	123	0.00 U	92.0	74	31-118	8	0-30
129-00-0	MSD Pyrene	123	0.00 U	80.6	65	27-126	7	0-30
85-68-7	MSD Butylbenzylphthalate	123	0.00 U	84.2	68	29-121	5	0-30
117-81-7	MSD bis(2-Ethylhexyl)phthalate	123	0.00 U	86.7	70	29-120	6	0-30
56-55-3	MSD Benzo(a)anthracene	123	0.00 U	89.5	72	35-112	9	0-30
218-01-9	MSD Chrysene	123	0.00 U	92.0	75	32-116	9	0-30
117-84-0	MSD Di-n-octylphthalate	123	0.00 U	89.3	72	25-118	5	0-30
205-99-2	MSD Benzo(b)fluoranthene	123	0.00 U	88.4	72	34-116	9	0-30
207-08-9	MSD Benzo(k)fluoranthene	123	0.00 U	92.8	75	34-119	7	0-30
50-32-8	MSD Benzo(a)pyrene	123	0.00 U	88.4	72	34-110	10	0-30

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 8 of 8

SDG Number: 2013-778

Sample Type: Matrix Spike Duplicate

Client ID: CAPA-13-29667MSD

Matrix: W

Lab Sample ID: 1202867364

Instrument: MSD8.I

Analysis Date: 05/02/2013 00:26

Dilution: 1

Analyst: RMB

Prep Batch ID: 1298461

Inj. Vol: 1 uL

Batch ID: 1298462

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	123	0.00 U	93.3	76	25-122	20	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	123	0.00 U	101	81	24-123	18	0-30
191-24-2	MSD Benzo(ghi)perylene	123	0.00 U	89.4	72	22-122	21	0-30
123-91-1	MSD 1,4-Dioxane	123	0.00 U	73.3	59	26-88	12	0-30
930-55-2	MSD N-Nitrosopyrrolidine	123	0.00 U	90.4	73	42-110	16	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	123	0.00 U	72.1	58	29-96	8	0-30
1912-24-9	MSD Atrazine	123	0.00 U	68.1	55	33-121	10	0-30
92-87-5	MSD Benzidine	247	0.00 U	331	134 *	10-117	12	0-30
91-94-1	MSD 3,3'-Dichlorobenzidine	123	0.00 U	107	87	22-111	8	0-30
120-82-1	MSD 1,2,4-Trichlorobenzene	123	0.00 U	58.7	48	20-90	14	0-30

Method Blank Summary

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SDG Number:	2013-778	Client:	ARSL001	Matrix:	WATER
Client ID:	MB for batch 1298461	Instrument ID:	MSD8.I	Data File:	s050113.B\s8E0119.D
Lab Sample ID:	1202867361	Prep Date:	05/01/2013 09:00	Analyzed:	05/01/13 19:12
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 1298461	1202867362	s050113.B\s8E0120.D	05/01/13	1944
02 CAPA-13-29667	324671001	s050113a.B\s8E0127.D	05/01/13	2323
03 CAPA-13-29667MS	1202867363	s050113a.B\s8E0128.D	05/01/13	2355
04 CAPA-13-29667MSD	1202867364	s050113a.B\s8E0129.D	05/02/13	0026
05 CAPA-13-29650	324671002	s050113a.B\s8E0130.D	05/02/13	0058
06 CAPA-13-29651	324671003	s050113a.B\s8E0131.D	05/02/13	0130
07 CAPA-13-29653	324671004	s050113a.B\s8E0132.D	05/02/13	0202
08 CAPA-13-29668	324671005	s050113a.B\s8E0133.D	05/02/13	0233

Quality Control Data

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2013-778

Lab Sample ID: 1202867361

Client Sample: QC for batch 1298461

Client ID: MB for batch 1298461

Batch ID: 1298462

Run Date: 05/01/2013 19:12

Prep Date: 05/01/2013 09:00

Data File: s050113.B\s8E0119.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

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	U	10.0	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
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	U	10.0	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
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
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline	U	10.0	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
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**

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SDG Number: 2013-778

Lab Sample ID: 1202867361

Client Sample: QC for batch 1298461

Client ID: MB for batch 1298461

Batch ID: 1298462

Run Date: 05/01/2013 19:12

Prep Date: 05/01/2013 09:00

Data File: s050113.B\s8E0119.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

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	U	10.0	ug/L	3.00	10.0
	<i>p</i> -Nitroaniline					
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	U	10.0	ug/L	3.00	10.0
	<i>1,2</i> -Diphenylhydrazine					
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**

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SDG Number: 2013-778

Lab Sample ID: 1202867361

Client Sample: QC for batch 1298461

Client ID: MB for batch 1298461

Batch ID: 1298462

Run Date: 05/01/2013 19:12

Prep Date: 05/01/2013 09:00

Data File: s050113.B\s8E0119.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

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	97.1	100	ug/L 97.1	(26%-129%)
2-Fluorobiphenyl	34.1	50.0	ug/L 68.2	(32%-102%)
2-Fluorophenol	54.3	100	ug/L 54.3	(10%-78%)
Nitrobenzene-d5	47.1	50.0	ug/L 94.2	(36%-125%)
Phenol-d5	36.2	100	ug/L 36.2	(10%-104%)
p-Terphenyl-d14	52.5	50.0	ug/L 105	(34%-135%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.079	6.97	ug/L	0	J
000067-66-3	Trichloromethane	2.176	59.3	ug/L	94	NJ
	unknown	2.422	59.4	ug/L	0	J
	unknown	2.459	15.9	ug/L	0	J
	unknown	2.529	167	ug/L	0	J
	unknown	3.646	8.23	ug/L	0	J
	unknown	4.064	7.56	ug/L	0	J

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2013-778

Lab Sample ID: 1202867362

Client Sample: QC for batch 1298461

Client ID: LCS for batch 1298461

Batch ID: 1298462

Run Date: 05/01/2013 19:44

Prep Date: 05/01/2013 09:00

Data File: s050113.B\s8E0120.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		24.7	ug/L	3.00	10.0
110-86-1	Pyridine		32.2	ug/L	3.00	10.0
62-53-3	Aniline		47.3	ug/L	3.00	10.0
108-95-2	Phenol		18.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		41.6	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		41.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		28.9	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		30.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		29.9	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		35.6	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		38.8	ug/L	3.00	10.0
95-48-7	o-Cresol		37.3	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		40.1	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine		42.4	ug/L	3.00	10.0
	<i>N-Nitrosodipropylamine</i>					
67-72-1	Hexachloroethane		29.7	ug/L	3.00	10.0
98-95-3	Nitrobenzene		39.1	ug/L	3.00	10.0
78-59-1	Isophorone		42.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		37.8	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		38.5	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		43.1	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		40.1	ug/L	3.00	10.0
65-85-0	Benzoic acid		35.3	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		50.5	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		27.8	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol		41.8	ug/L	3.00	10.0
	<i>4-Chloro-3-methylphenol</i>					
91-57-6	2-Methylnaphthalene		31.3	ug/L	0.300	1.00
91-20-3	Naphthalene		32.1	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		33.3	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		24.3	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		43.2	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		47.3	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		36.9	ug/L	0.300	1.00
88-74-4	2-Nitroaniline		46.9	ug/L	3.00	10.0
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline		60.1	ug/L	3.00	10.0
	<i>m-Nitroaniline</i>					
131-11-3	Dimethylphthalate		45.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		43.9	ug/L	3.00	10.0

**Semi-Volatile
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Sample Summary**

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SDG Number: 2013-778

Lab Sample ID: 1202867362

Client Sample: QC for batch 1298461

Client ID: LCS for batch 1298461

Batch ID: 1298462

Run Date: 05/01/2013 19:44

Prep Date: 05/01/2013 09:00

Data File: s050113.B\s8E0120.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 1000 mL

Column: DB-5ms

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		45.4	ug/L	3.00	10.0
208-96-8	Acenaphthylene		40.2	ug/L	0.300	1.00
83-32-9	Acenaphthene		38.2	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		33.9	ug/L	5.00	20.0
132-64-9	Dibenzofuran		42.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		47.4	ug/L	3.00	10.0
84-66-2	Diethylphthalate		45.6	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		24.3	ug/L	3.00	10.0
86-73-7	Fluorene		43.2	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		44.4	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		77.7	ug/L	3.00	10.0
	<i>p</i> -Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		49.9	ug/L	3.00	10.0
122-39-4	Diphenylamine		41.9	ug/L	3.00	10.0
122-66-7	Azobenzene		41.7	ug/L	3.00	10.0
	<i>1,2-Diphenylhydrazine</i>					
101-55-3	4-Bromophenylphenylether		45.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		43.6	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		40.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		41.6	ug/L	0.300	1.00
120-12-7	Anthracene		41.8	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		42.8	ug/L	3.00	10.0
206-44-0	Fluoranthene		42.1	ug/L	0.300	1.00
129-00-0	Pyrene		34.9	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		36.2	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		36.9	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		41.1	ug/L	0.300	1.00
218-01-9	Chrysene		42.2	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		39.1	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		41.1	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		42.9	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		40.9	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		44.8	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		46.6	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		42.3	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		25.6	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		40.8	ug/L	3.00	10.0

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Sample Summary

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SDG Number: 2013-778

Lab Sample ID: 1202867362

Client Sample: QC for batch 1298461

Client ID: LCS for batch 1298461

Batch ID: 1298462

Run Date: 05/01/2013 19:44

Prep Date: 05/01/2013 09:00

Data File: s050113.B\s8E0120.D

Client: ARSL001

Method: SW846 8270C

Inst: MSD8.I

Analyst: RMB

Aliquot: 1000 mL

Column: DB-5ms

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

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		34.7	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		32.9	ug/L	3.00	10.0
92-87-5	Benzidine	E	102	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		47.2	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		28.7	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	100	100	ug/L	100	(26%-129%)
2-Fluorobiphenyl	36.1	50.0	ug/L	72.2	(32%-102%)
2-Fluorophenol	49.3	100	ug/L	49.3	(10%-78%)
Nitrobenzene-d5	40.6	50.0	ug/L	81.3	(36%-125%)
Phenol-d5	33.5	100	ug/L	33.5	(10%-104%)
p-Terphenyl-d14	40.3	50.0	ug/L	80.5	(34%-135%)

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2013-778	Date Collected: 04/25/2013 12:41	Matrix: W
Lab Sample ID: 1202867363	Date Received: 04/27/2013 09:00	
Client Sample: QC for batch 1298461	Client: ARSL001	Project: QC
Client ID: CAPA-13-29667MS	Method: SW846 8270C	SOP Ref: GL-OA-E-009
Batch ID: 1298462	Inst: MSD8.I	Dilution: 1
Run Date: 05/01/2013 23:55	Analyst: RMB	Inj. Vol: 1 uL
Prep Date: 05/01/2013 09:00	Aliquot: 405 mL	Final Volume: 1 mL
Data File: s050113a.B\s8E0128.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		82.0	ug/L	7.41	24.7
110-86-1	Pyridine		110	ug/L	7.41	24.7
62-53-3	Aniline		121	ug/L	7.41	24.7
108-95-2	Phenol		76.3	ug/L	7.41	24.7
111-44-4	bis(2-Chloroethyl) ether		97.1	ug/L	7.41	24.7
95-57-8	2-Chlorophenol		101	ug/L	7.41	24.7
541-73-1	1,3-Dichlorobenzene		56.4	ug/L	7.41	24.7
106-46-7	1,4-Dichlorobenzene		57.5	ug/L	7.41	24.7
95-50-1	1,2-Dichlorobenzene		59.1	ug/L	7.41	24.7
39638-32-9	bis(2-Chloroisopropyl)ether		84.1	ug/L	7.41	24.7
100-51-6	Benzyl alcohol		105	ug/L	7.41	24.7
95-48-7	o-Cresol		99.1	ug/L	7.41	24.7
65794-96-9	m,p-Cresols		117	ug/L	7.41	24.7
621-64-7	N-Nitrosodi--n-propylamine		99.9	ug/L	7.41	24.7
	<i>N-Nitrosodipropylamine</i>					
67-72-1	Hexachloroethane		55.3	ug/L	7.41	24.7
98-95-3	Nitrobenzene		103	ug/L	7.41	24.7
78-59-1	Isophorone		111	ug/L	7.41	24.7
88-75-5	2-Nitrophenol		103	ug/L	7.41	24.7
105-67-9	2,4-Dimethylphenol		102	ug/L	7.41	24.7
111-91-1	bis(2-Chloroethoxy)methane		113	ug/L	7.41	24.7
120-83-2	2,4-Dichlorophenol		105	ug/L	7.41	24.7
65-85-0	Benzoic acid		169	ug/L	14.8	49.4
106-47-8	4-Chloroaniline		140	ug/L	8.15	24.7
87-68-3	Hexachlorobutadiene		58.9	ug/L	7.41	24.7
59-50-7	Parachlorometa cresol		111	ug/L	7.41	24.7
	<i>4-Chloro-3-methylphenol</i>					
91-57-6	2-Methylnaphthalene		79.9	ug/L	0.741	2.47
91-20-3	Naphthalene		81.1	ug/L	0.741	2.47
90-12-0	1-Methylnaphthalene		86.3	ug/L	0.741	2.47
77-47-4	Hexachlorocyclopentadiene		56.2	ug/L	7.41	24.7
88-06-2	2,4,6-Trichlorophenol		105	ug/L	7.41	24.7
95-95-4	2,4,5-Trichlorophenol		113	ug/L	7.41	24.7
91-58-7	2-Chloronaphthalene		85.1	ug/L	0.741	2.47
88-74-4	2-Nitroaniline		114	ug/L	7.41	24.7
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline		152	ug/L	7.41	24.7
	<i>m-Nitroaniline</i>					
131-11-3	Dimethylphthalate		109	ug/L	7.41	24.7
606-20-2	2,6-Dinitrotoluene		103	ug/L	7.41	24.7

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Sample Summary**

SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202867363	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1298461	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667MS	Method:	SW846 8270C	SOP Ref:	GL-OA-E-009
Batch ID:	1298462	Inst:	MSD8.I	Dilution:	1
Run Date:	05/01/2013 23:55	Analyst:	RMB	Inj. Vol:	1 uL
Prep Date:	05/01/2013 09:00	Aliquot:	405 mL	Final Volume:	1 mL
Data File:	s050113a.B\s8E0128.D	Column:	DB-5ms		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		109	ug/L	7.41	24.7
208-96-8	Acenaphthylene		94.0	ug/L	0.741	2.47
83-32-9	Acenaphthene		87.2	ug/L	0.741	2.47
51-28-5	2,4-Dinitrophenol		96.9	ug/L	12.3	49.4
132-64-9	Dibenzofuran		98.3	ug/L	7.41	24.7
58-90-2	2,3,4,6-Tetrachlorophenol		116	ug/L	7.41	24.7
84-66-2	Diethylphthalate		107	ug/L	7.41	24.7
100-02-7	4-Nitrophenol		97.3	ug/L	7.41	24.7
86-73-7	Fluorene		99.7	ug/L	0.741	2.47
7005-72-3	4-Chlorophenylphenylether		103	ug/L	7.41	24.7
100-01-6	4-Nitroaniline		198	ug/L	7.41	24.7
	<i>p</i> -Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		125	ug/L	7.41	24.7
122-39-4	Diphenylamine		98.6	ug/L	7.41	24.7
122-66-7	Azobenzene		97.5	ug/L	7.41	24.7
	<i>1,2-Diphenylhydrazine</i>					
101-55-3	4-Bromophenylphenylether		106	ug/L	7.41	24.7
118-74-1	Hexachlorobenzene		100	ug/L	7.41	24.7
87-86-5	Pentachlorophenol		102	ug/L	7.41	24.7
88-85-7	Dinoseb	U	24.7	ug/L	7.41	24.7
85-01-8	Phenanthrene		98.8	ug/L	0.741	2.47
120-12-7	Anthracene		99.2	ug/L	0.741	2.47
84-74-2	Di-n-butylphthalate		100	ug/L	7.41	24.7
206-44-0	Fluoranthene		100	ug/L	0.741	2.47
129-00-0	Pyrene		86.8	ug/L	0.741	2.47
85-68-7	Butylbenzylphthalate		88.7	ug/L	7.41	24.7
117-81-7	bis(2-Ethylhexyl)phthalate		91.6	ug/L	7.41	24.7
56-55-3	Benzo(a)anthracene		97.5	ug/L	0.741	2.47
218-01-9	Chrysene		100	ug/L	0.741	2.47
117-84-0	Di-n-octylphthalate		93.7	ug/L	7.41	24.7
205-99-2	Benzo(b)fluoranthene		96.4	ug/L	0.741	2.47
207-08-9	Benzo(k)fluoranthene		100	ug/L	0.741	2.47
50-32-8	Benzo(a)pyrene		97.5	ug/L	1.09	2.47
193-39-5	Indeno(1,2,3-cd)pyrene		114	ug/L	0.741	2.47
53-70-3	Dibenzo(a,h)anthracene		120	ug/L	0.741	2.47
191-24-2	Benzo(ghi)perylene		111	ug/L	0.741	2.47
123-91-1	1,4-Dioxane		82.8	ug/L	7.41	24.7
55-18-5	N-Nitrosodiethylamine	U	24.7	ug/L	7.41	24.7
930-55-2	N-Nitrosopyrrolidine		106	ug/L	7.41	24.7

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Sample Summary**

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SDG Number: 2013-778	Date Collected: 04/25/2013 12:41	Matrix: W
Lab Sample ID: 1202867363	Date Received: 04/27/2013 09:00	
Client Sample: QC for batch 1298461	Client: ARSL001	Project: QC
Client ID: CAPA-13-29667MS	Method: SW846 8270C	SOP Ref: GL-OA-E-009
Batch ID: 1298462	Inst: MSD8.I	Dilution: 1
Run Date: 05/01/2013 23:55	Analyst: RMB	Inj. Vol: 1 uL
Prep Date: 05/01/2013 09:00	Aliquot: 405 mL	Final Volume: 1 mL
Data File: s050113a.B\s8E0128.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	24.7	ug/L	7.41	24.7
95-94-3	1,2,4,5-Tetrachlorobenzene		78.1	ug/L	7.41	24.7
608-93-5	Pentachlorobenzene	U	24.7	ug/L	7.41	24.7
1912-24-9	Atrazine		75.0	ug/L	7.41	24.7
92-87-5	Benzidine	E	372	ug/L	7.41	24.7
91-94-1	3,3'-Dichlorobenzidine		116	ug/L	7.41	24.7
120-82-1	1,2,4-Trichlorobenzene		67.5	ug/L	7.41	24.7

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	244	247	ug/L	98.7	(26%-129%)
2-Fluorobiphenyl	88.4	123	ug/L	71.6	(32%-102%)
2-Fluorophenol	167	247	ug/L	67.6	(10%-78%)
Nitrobenzene-d5	107	123	ug/L	86.6	(36%-125%)
Phenol-d5	146	247	ug/L	59.2	(10%-104%)
p-Terphenyl-d14	99.0	123	ug/L	80.2	(34%-135%)

**Semi-Volatile
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Sample Summary**

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SDG Number: 2013-778	Date Collected: 04/25/2013 12:41	Matrix: W
Lab Sample ID: 1202867364	Date Received: 04/27/2013 09:00	
Client Sample: QC for batch 1298461	Client: ARSL001	Project: QC
Client ID: CAPA-13-29667MSD	Method: SW846 8270C	SOP Ref: GL-OA-E-009
Batch ID: 1298462	Inst: MSD8.I	Dilution: 1
Run Date: 05/02/2013 00:26	Analyst: RMB	Inj. Vol: 1 uL
Prep Date: 05/01/2013 09:00	Aliquot: 405 mL	Final Volume: 1 mL
Data File: s050113a.B\s8E0129.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		72.1	ug/L	7.41	24.7
110-86-1	Pyridine		97.9	ug/L	7.41	24.7
62-53-3	Aniline		108	ug/L	7.41	24.7
108-95-2	Phenol		65.3	ug/L	7.41	24.7
111-44-4	bis(2-Chloroethyl) ether		83.6	ug/L	7.41	24.7
95-57-8	2-Chlorophenol		85.1	ug/L	7.41	24.7
541-73-1	1,3-Dichlorobenzene		55.5	ug/L	7.41	24.7
106-46-7	1,4-Dichlorobenzene		57.2	ug/L	7.41	24.7
95-50-1	1,2-Dichlorobenzene		57.8	ug/L	7.41	24.7
39638-32-9	bis(2-Chloroisopropyl)ether		73.4	ug/L	7.41	24.7
100-51-6	Benzyl alcohol		90.2	ug/L	7.41	24.7
95-48-7	o-Cresol		84.1	ug/L	7.41	24.7
65794-96-9	m,p-Cresols		100	ug/L	7.41	24.7
621-64-7	N-Nitrosodi--n-propylamine		86.0	ug/L	7.41	24.7
	<i>N-Nitrosodipropylamine</i>					
67-72-1	Hexachloroethane		58.4	ug/L	7.41	24.7
98-95-3	Nitrobenzene		83.0	ug/L	7.41	24.7
78-59-1	Isophorone		87.2	ug/L	7.41	24.7
88-75-5	2-Nitrophenol		82.2	ug/L	7.41	24.7
105-67-9	2,4-Dimethylphenol		80.2	ug/L	7.41	24.7
111-91-1	bis(2-Chloroethoxy)methane		88.7	ug/L	7.41	24.7
120-83-2	2,4-Dichlorophenol		82.9	ug/L	7.41	24.7
65-85-0	Benzoic acid		140	ug/L	14.8	49.4
106-47-8	4-Chloroaniline		112	ug/L	8.15	24.7
87-68-3	Hexachlorobutadiene		55.1	ug/L	7.41	24.7
59-50-7	Parachlorometa cresol		89.4	ug/L	7.41	24.7
	<i>4-Chloro-3-methylphenol</i>					
91-57-6	2-Methylnaphthalene		65.0	ug/L	0.741	2.47
91-20-3	Naphthalene		68.4	ug/L	0.741	2.47
90-12-0	1-Methylnaphthalene		70.5	ug/L	0.741	2.47
77-47-4	Hexachlorocyclopentadiene		54.1	ug/L	7.41	24.7
88-06-2	2,4,6-Trichlorophenol		93.1	ug/L	7.41	24.7
95-95-4	2,4,5-Trichlorophenol		101	ug/L	7.41	24.7
91-58-7	2-Chloronaphthalene		76.9	ug/L	0.741	2.47
88-74-4	2-Nitroaniline		101	ug/L	7.41	24.7
	<i>o-Nitroaniline</i>					
99-09-2	3-Nitroaniline		137	ug/L	7.41	24.7
	<i>m-Nitroaniline</i>					
131-11-3	Dimethylphthalate		99.5	ug/L	7.41	24.7
606-20-2	2,6-Dinitrotoluene		95.2	ug/L	7.41	24.7

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number:	2013-778	Date Collected:	04/25/2013 12:41	Matrix:	W
Lab Sample ID:	1202867364	Date Received:	04/27/2013 09:00		
Client Sample:	QC for batch 1298461	Client:	ARSL001	Project:	QC
Client ID:	CAPA-13-29667MSD	Method:	SW846 8270C	SOP Ref:	GL-OA-E-009
Batch ID:	1298462	Inst:	MSD8.I	Dilution:	1
Run Date:	05/02/2013 00:26	Analyst:	RMB	Inj. Vol:	1 uL
Prep Date:	05/01/2013 09:00	Aliquot:	405 mL	Final Volume:	1 mL
Data File:	s050113a.B\s8E0129.D	Column:	DB-5ms		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		98.6	ug/L	7.41	24.7
208-96-8	Acenaphthylene		84.7	ug/L	0.741	2.47
83-32-9	Acenaphthene		79.1	ug/L	0.741	2.47
51-28-5	2,4-Dinitrophenol		85.9	ug/L	12.3	49.4
132-64-9	Dibenzofuran		88.5	ug/L	7.41	24.7
58-90-2	2,3,4,6-Tetrachlorophenol		107	ug/L	7.41	24.7
84-66-2	Diethylphthalate		100	ug/L	7.41	24.7
100-02-7	4-Nitrophenol		87.2	ug/L	7.41	24.7
86-73-7	Fluorene		90.9	ug/L	0.741	2.47
7005-72-3	4-Chlorophenylphenylether		94.7	ug/L	7.41	24.7
100-01-6	4-Nitroaniline		175	ug/L	7.41	24.7
	<i>p</i> -Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		115	ug/L	7.41	24.7
122-39-4	Diphenylamine		93.0	ug/L	7.41	24.7
122-66-7	Azobenzene		91.6	ug/L	7.41	24.7
	<i>1,2-Diphenylhydrazine</i>					
101-55-3	4-Bromophenylphenylether		99.1	ug/L	7.41	24.7
118-74-1	Hexachlorobenzene		95.8	ug/L	7.41	24.7
87-86-5	Pentachlorophenol		95.0	ug/L	7.41	24.7
88-85-7	Dinoseb	U	24.7	ug/L	7.41	24.7
85-01-8	Phenanthrene		91.0	ug/L	0.741	2.47
120-12-7	Anthracene		91.8	ug/L	0.741	2.47
84-74-2	Di-n-butylphthalate		96.3	ug/L	7.41	24.7
206-44-0	Fluoranthene		92.0	ug/L	0.741	2.47
129-00-0	Pyrene		80.6	ug/L	0.741	2.47
85-68-7	Butylbenzylphthalate		84.2	ug/L	7.41	24.7
117-81-7	bis(2-Ethylhexyl)phthalate		86.7	ug/L	7.41	24.7
56-55-3	Benzo(a)anthracene		89.5	ug/L	0.741	2.47
218-01-9	Chrysene		92.0	ug/L	0.741	2.47
117-84-0	Di-n-octylphthalate		89.3	ug/L	7.41	24.7
205-99-2	Benzo(b)fluoranthene		88.4	ug/L	0.741	2.47
207-08-9	Benzo(k)fluoranthene		92.8	ug/L	0.741	2.47
50-32-8	Benzo(a)pyrene		88.4	ug/L	1.09	2.47
193-39-5	Indeno(1,2,3-cd)pyrene		93.3	ug/L	0.741	2.47
53-70-3	Dibenzo(a,h)anthracene		101	ug/L	0.741	2.47
191-24-2	Benzo(ghi)perylene		89.4	ug/L	0.741	2.47
123-91-1	1,4-Dioxane		73.3	ug/L	7.41	24.7
55-18-5	N-Nitrosodiethylamine	U	24.7	ug/L	7.41	24.7
930-55-2	N-Nitrosopyrrolidine		90.4	ug/L	7.41	24.7

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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SDG Number: 2013-778	Date Collected: 04/25/2013 12:41	Matrix: W
Lab Sample ID: 1202867364	Date Received: 04/27/2013 09:00	
Client Sample: QC for batch 1298461	Client: ARSL001	Project: QC
Client ID: CAPA-13-29667MSD	Method: SW846 8270C	SOP Ref: GL-OA-E-009
Batch ID: 1298462	Inst: MSD8.I	Dilution: 1
Run Date: 05/02/2013 00:26	Analyst: RMB	Inj. Vol: 1 uL
Prep Date: 05/01/2013 09:00	Aliquot: 405 mL	Final Volume: 1 mL
Data File: s050113a.B\s8E0129.D	Column: DB-5ms	

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	24.7	ug/L	7.41	24.7
95-94-3	1,2,4,5-Tetrachlorobenzene		72.1	ug/L	7.41	24.7
608-93-5	Pentachlorobenzene	U	24.7	ug/L	7.41	24.7
1912-24-9	Atrazine		68.1	ug/L	7.41	24.7
92-87-5	Benzidine	E	331	ug/L	7.41	24.7
91-94-1	3,3'-Dichlorobenzidine		107	ug/L	7.41	24.7
120-82-1	1,2,4-Trichlorobenzene		58.7	ug/L	7.41	24.7

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	219	247	ug/L	88.6	(26%-129%)
2-Fluorobiphenyl	79.1	123	ug/L	64.1	(32%-102%)
2-Fluorophenol	145	247	ug/L	58.8	(10%-78%)
Nitrobenzene-d5	85.1	123	ug/L	68.9	(36%-125%)
Phenol-d5	126	247	ug/L	51.2	(10%-104%)
p-Terphenyl-d14	92.0	123	ug/L	74.5	(34%-135%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 02-MAY-13	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: SEMIVOA GC/MS	Test / Method: SW846 8270C	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1298462	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 324498(2013-760),324671(2013-778) Application Issues: Failed Recovery for MS/PS Failed Recovery for LCS/LCSD Failed Yield for Surrogates Failed Recovery for MSD/PSD			
Specification and Requirements		DER Disposition:	
Exception Description: 1. The LCS(1202867362) recovered p-Nitroaniline outside of the acceptance limits. Please see the QC Summary report for specific failure. 2. The MS(1202867363) and MSD(1202867364) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific failures. 3. Sample 324498006 did not meet surrogate recovery acceptance criteria.		1. Since there were no target analytes detected in the associated client samples, the biased high spike recovery had no adverse impact on the data and the results have been reported. 2. Since there were no target analytes detected in the associated parent sample, the biased high spike recoveries had no adverse impact on the data and the results have been reported. 3. The sample was re-extracted out of holding from batch 1297644. Since the re-extraction displayed similar surrogate recoveries, the failures were attributed to sample matrix interference and the original data results have been reported. The re-extracted raw data results are located in the Miscellaneous Section of the data package.	

Originator's Name:

Richard Bomar 02-MAY-13

Data Validator/Group Leader:

Barbara Bailey 03-MAY-13

Perchlorates by LCMSMS Analysis

Case Narrative

**Perchlorate by LC-MS/MS
ARS International (ARSL)
SDG 2013-778**

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: 1298898

Prep Batch Number: 1298897

Sample Analysis

Sample ID	Client ID
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202868456	Interference Check Sample (ICS)
1202868452	Method Blank (MB)
1202868453	Laboratory Control Sample (LCS)
1202868454	324671009(CAPA-13-29678) Matrix Spike (MS)
1202868455	324671009(CAPA-13-29678) 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 324671009 (CAPA-13-29678) 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: 2013-778 GEL Work Order: 324671

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: 

Name: Michael Penny

Date: 08 MAY 2013

Title: Group Leader

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAPA-13-29678Date Received: 27-APR-13GEL Job No (SDG): 2013-778GEL Sample ID: 324671009Date Filtered: 02-MAY-13Injection 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	0.252	ug/L		1	06-MAY-13 17:01	per0506023a
	Perchlorate Isotope Ratio			3.17			1	06-MAY-13 17:01	per0506023a
14797-73-0	Perchlorate-101	.05	.2	0.254	ug/L		1	06-MAY-13 17:01	per0506023a
	Perchlorate-O(18)			0.490	ug/L		1	06-MAY-13 17:01	per0506023a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAPA-13-29652Date Received: 27-APR-13GEL Job No (SDG): 2013-778GEL Sample ID: 324671010Date Filtered: 02-MAY-13Injection 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	0.247	ug/L		1	06-MAY-13 17:27	per0506026a
	Perchlorate Isotope Ratio			3.09			1	06-MAY-13 17:27	per0506026a
14797-73-0	Perchlorate-101	.05	.2	0.256	ug/L		1	06-MAY-13 17:27	per0506026a
	Perchlorate-O(18)			0.496	ug/L		1	06-MAY-13 17:27	per0506026a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAPA-13-29679Date Received: 27-APR-13GEL Job No (SDG): 2013-778GEL Sample ID: 324671011Date Filtered: 02-MAY-13Injection 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	0.247	ug/L		1	06-MAY-13 17:36	per0506027a
	Perchlorate Isotope Ratio			3.04			1	06-MAY-13 17:36	per0506027a
14797-73-0	Perchlorate-101	.05	.2	0.260	ug/L		1	06-MAY-13 17:36	per0506027a
	Perchlorate-O(18)			0.497	ug/L		1	06-MAY-13 17:36	per0506027a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAPA-13-29653Date Received: 27-APR-13GEL Job No (SDG): 2013-778GEL Sample ID: 324671012Date Filtered: 02-MAY-13Injection Volume (uL): 20%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.200	ug/L	U	1	06-MAY-13 17:44	per0506028a
	Perchlorate Isotope Ratio						1	06-MAY-13 17:44	per0506028a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	06-MAY-13 17:44	per0506028a
	Perchlorate-O(18)			0.492	ug/L		1	06-MAY-13 17:44	per0506028a

^ 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 =

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

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-778

Extract Batch Code: 1298897

Date Filtered: 02-MAY-13

Matrix: WATER

Sample ID: 1202868453

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.192	ug/L	96.1		85 - 115
Perchlorate Isotope Ratio		3.07				-
Perchlorate-101	0.200	.2	ug/L	100		85 - 115
Perchlorate-O(18)		.492	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): 2013-778

Extract Batch Code: 1298897

Date Extracted: 02-MAY-13

GEL MS/PS ID: 1202868454

Client ID: CAPA-13-29678

GEL MSD/PSD ID: 1202868455

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	0.252	ug/L	0.438	92.9	.445	96.5	1.67	30	75 - 125
Perchlorate Isotope Ratio	0	3.17		3.14		3.15		.362		-
Perchlorate-101	0.200	0.254	ug/L	0.447	96.2	.453	99.2	1.3	30	75 - 125
Perchlorate-O(18)	0	0.490	ug/L	0.494		.497		.482		-

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: EPA 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

MBDate Received: 02-MAY-13GEL Job No (SDG): 2013-778GEL Sample ID: 1202868452Date Filtered: 02-MAY-13Injection 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	06-MAY-13 16:36	per0506020a
	Perchlorate Isotope Ratio						1	06-MAY-13 16:36	per0506020a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	06-MAY-13 16:36	per0506020a
	Perchlorate-O(18)			0.490	ug/L		1	06-MAY-13 16:36	per0506020a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: EPA 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

LCSDate Received: 02-MAY-13GEL Job No (SDG): 2013-778GEL Sample ID: 1202868453Date Filtered: 02-MAY-13Injection 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	0.192	ug/L	J	1	06-MAY-13 16:44	per0506021a
	Perchlorate Isotope Ratio			3.07			1	06-MAY-13 16:44	per0506021a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L		1	06-MAY-13 16:44	per0506021a
	Perchlorate-O(18)			0.492	ug/L		1	06-MAY-13 16:44	per0506021a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

ICS

Date Received:

GEL Job No (SDG): 2013-778GEL Sample ID: 1202868456Date Filtered: 02-MAY-13Injection 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	0.202	ug/L		1	06-MAY-13 16:53	per0506022a
	Perchlorate Isotope Ratio			3.17			1	06-MAY-13 16:53	per0506022a
14797-73-0	Perchlorate-101	.05	.2	0.204	ug/L		1	06-MAY-13 16:53	per0506022a
	Perchlorate-O(18)			0.487	ug/L		1	06-MAY-13 16:53	per0506022a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAPA-13-29678MSDate Received: 27-APR-13GEL Job No (SDG): 2013-778GEL Sample ID: 1202868454Date Filtered: 02-MAY-13Injection 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	0.438	ug/L		1	06-MAY-13 17:10	per0506024a
	Perchlorate Isotope Ratio			3.14			1	06-MAY-13 17:10	per0506024a
14797-73-0	Perchlorate-101	.05	.2	0.447	ug/L		1	06-MAY-13 17:10	per0506024a
	Perchlorate-O(18)			0.494	ug/L		1	06-MAY-13 17:10	per0506024a

^ 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 LLCLab Code: GELInstrument: LCMSMSMethod: SW846 6850 ModifiedMatrix: WATERExtraction Batch ID: 1298897Extraction Type: Filter/DAISample Volume/Weight: 10.0 mLConcentrated Extract Volume: 10.0

Client Sample No.

CAPA-13-29678MSDDate Received: 27-APR-13GEL Job No (SDG): 2013-778GEL Sample ID: 1202868455Date Filtered: 02-MAY-13Injection 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	0.445	ug/L		1	06-MAY-13 17:19	per0506025a
	Perchlorate Isotope Ratio			3.15			1	06-MAY-13 17:19	per0506025a
14797-73-0	Perchlorate-101	.05	.2	0.453	ug/L		1	06-MAY-13 17:19	per0506025a
	Perchlorate-O(18)			0.497	ug/L		1	06-MAY-13 17:19	per0506025a

^ 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 2013-778**

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: 1298905

Prep Batch Number: 1298902

Sample Analysis

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

Sample ID	Client ID
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202868470	Method Blank (MB)
1202868471	Laboratory Control Sample (LCS)
1202868472	324671006(CAPA-13-29667) Matrix Spike (MS)
1202868473	324671006(CAPA-13-29667) 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 324671006 (CAPA-13-29667) 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 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 324671006 (CAPA-13-29667) 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: 2013-778 GEL Work Order: 324671

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: 

Name: Michael Penny

Date: 20 MAY 2013

Title: Group Leader

Sample Data Summary

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671006

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513045.wiff

Date Analyzed: 14-MAY-13 12:59

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.273	U	0.0874	0.273
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	0.273	U	0.0874	0.273
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	0.273	U	0.0874	0.273
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	0.273	U	0.0874	0.273
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.273	U	0.0874	0.273
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	0.273	U	0.0874	0.273
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.273	U	0.0874	0.273
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
5755-27-1	MNX	0.273	U	0.0874	0.273
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	0.273	U	0.0874	0.273
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	0.273	U	0.0874	0.273
<i>80251-29-2</i>	<i>DNX</i>				
88-72-2	o-Nitrotoluene	0.273	U	0.0896	0.273
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
98-95-3	Nitrobenzene	0.273	U	0.0874	0.273
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	0.273	U	0.0874	0.273
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671006

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4 <i>99-35-4</i>	1,3,5-Trinitrobenzene <i>1,3,5-Trinitrobenzene</i>	0.273	U	0.0874	0.273
99-65-0 <i>99-65-0</i>	m-Dinitrobenzene <i>m-Dinitrobenzene</i>	0.273	U	0.0874	0.273
479-45-8 <i>479-45-8</i>	Tetryl <i>Tetryl</i>	0.546	U	0.0874	0.546
78-11-5 <i>78-11-5</i>	PETN <i>PETN</i>	0.546	U	0.109	0.546
99-99-0 <i>99-99-0</i>	p-Nitrotoluene <i>p-Nitrotoluene</i>	0.546	U	0.164	0.546

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671006

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170024.wiff

Date Analyzed: 17-MAY-13 22:05

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.09	U	0.328	1.09
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	1.09	U	0.328	1.09
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	1.09	U	0.328	1.09
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.73	U	0.546	2.73
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.73	U	0.546	2.73
6629-29-4	2,4-Diamino-6-nitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29651

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671007

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513048.wiff

Date Analyzed: 14-MAY-13 14:44

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.273	U	0.0874	0.273
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	0.273	U	0.0874	0.273
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	0.273	U	0.0874	0.273
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	0.273	U	0.0874	0.273
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.273	U	0.0874	0.273
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	0.273	U	0.0874	0.273
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.273	U	0.0874	0.273
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
5755-27-1	MNX	0.273	U	0.0874	0.273
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	0.273	U	0.0874	0.273
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	0.273	U	0.0874	0.273
<i>80251-29-2</i>	<i>DNX</i>				
88-72-2	o-Nitrotoluene	0.273	U	0.0896	0.273
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
98-95-3	Nitrobenzene	0.273	U	0.0874	0.273
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	0.273	U	0.0874	0.273
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29651

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671007

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4 <i>99-35-4</i>	1,3,5-Trinitrobenzene <i>1,3,5-Trinitrobenzene</i>	0.273	U	0.0874	0.273
99-65-0 <i>99-65-0</i>	m-Dinitrobenzene <i>m-Dinitrobenzene</i>	0.273	U	0.0874	0.273
479-45-8 <i>479-45-8</i>	Tetryl <i>Tetryl</i>	0.546	U	0.0874	0.546
78-11-5 <i>78-11-5</i>	PETN <i>PETN</i>	0.546	U	0.109	0.546
99-99-0 <i>99-99-0</i>	p-Nitrotoluene <i>p-Nitrotoluene</i>	0.546	U	0.164	0.546

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29651

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671007

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170027.wiff

Date Analyzed: 17-MAY-13 22:55

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.09	U	0.328	1.09
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	1.09	U	0.328	1.09
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	1.09	U	0.328	1.09
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.73	U	0.546	2.73
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.73	U	0.546	2.73
6629-29-4	2,4-Diamino-6-nitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29668

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671008

Sample Amount 985 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513049.wiff

Date Analyzed: 14-MAY-13 15:19

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.254	U	0.0812	0.254
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	0.254	U	0.0812	0.254
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	0.254	U	0.0812	0.254
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	0.254	U	0.0812	0.254
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.254	U	0.0812	0.254
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	0.254	U	0.0812	0.254
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.254	U	0.0812	0.254
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
5755-27-1	MNX	0.254	U	0.0812	0.254
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	0.254	U	0.0812	0.254
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	0.254	U	0.0812	0.254
<i>80251-29-2</i>	<i>DNX</i>				
88-72-2	o-Nitrotoluene	0.254	U	0.0832	0.254
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
98-95-3	Nitrobenzene	0.254	U	0.0812	0.254
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	0.254	U	0.0812	0.254
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29668

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671008

Sample Amount 985 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4 <i>99-35-4</i>	1,3,5-Trinitrobenzene <i>1,3,5-Trinitrobenzene</i>	0.254	U	0.0812	0.254
99-65-0 <i>99-65-0</i>	m-Dinitrobenzene <i>m-Dinitrobenzene</i>	0.254	U	0.0812	0.254
479-45-8 <i>479-45-8</i>	Tetryl <i>Tetryl</i>	0.508	U	0.0812	0.508
78-11-5 <i>78-11-5</i>	PETN <i>PETN</i>	0.508	U	0.102	0.508
99-99-0 <i>99-99-0</i>	p-Nitrotoluene <i>p-Nitrotoluene</i>	0.508	U	0.152	0.508

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29668

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671008

Sample Amount 985 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170028.wiff

Date Analyzed: 17-MAY-13 23:11

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.02	U	0.305	1.02
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	1.02	U	0.305	1.02
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	1.02	U	0.305	1.02
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.54	U	0.508	2.54
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.54	U	0.508	2.54
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29653

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671012

Sample Amount 935 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513050.wiff

Date Analyzed: 14-MAY-13 15:54

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.267	U	0.0856	0.267
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	0.267	U	0.0856	0.267
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	0.267	U	0.0856	0.267
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	0.267	U	0.0856	0.267
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.267	U	0.0856	0.267
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	0.267	U	0.0856	0.267
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.267	U	0.0856	0.267
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
5755-27-1	MNX	0.267	U	0.0856	0.267
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	0.267	U	0.0856	0.267
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	0.267	U	0.0856	0.267
<i>80251-29-2</i>	<i>DNX</i>				
88-72-2	o-Nitrotoluene	0.267	U	0.0877	0.267
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
98-95-3	Nitrobenzene	0.267	U	0.0856	0.267
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	0.267	U	0.0856	0.267
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29653

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671012

Sample Amount 935 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4 <i>99-35-4</i>	1,3,5-Trinitrobenzene <i>1,3,5-Trinitrobenzene</i>	0.267	U	0.0856	0.267
99-65-0 <i>99-65-0</i>	m-Dinitrobenzene <i>m-Dinitrobenzene</i>	0.267	U	0.0856	0.267
479-45-8 <i>479-45-8</i>	Tetryl <i>Tetryl</i>	0.535	U	0.0856	0.535
78-11-5 <i>78-11-5</i>	PETN <i>PETN</i>	0.535	U	0.107	0.535
99-99-0 <i>99-99-0</i>	p-Nitrotoluene <i>p-Nitrotoluene</i>	0.535	U	0.160	0.535

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29653

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 324671012

Sample Amount 935 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170029.wiff

Date Analyzed: 17-MAY-13 23:28

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.07	U	0.321	1.07
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	1.07	U	0.321	1.07
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	1.07	U	0.321	1.07
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.67	U	0.535	2.67
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.67	U	0.535	2.67
6629-29-4	2,4-Diamino-6-nitrotoluene				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLCGEL Job No (SDG): 2013-778Lab Code: GELHPLC Column: Phenomenex Ultracarb 5u ODS(20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
324671006	CAPA-13-29667	92.4	66 - 120	
324671006	CAPA-13-29667	95.2	66 - 120	
324671007	CAPA-13-29651	91.2	66 - 120	
324671007	CAPA-13-29651	98	66 - 120	
324671008	CAPA-13-29668	89.6	66 - 120	
324671008	CAPA-13-29668	94.8	66 - 120	
324671012	CAPA-13-29653	90	66 - 120	
324671012	CAPA-13-29653	96.8	66 - 120	
1202868470	MB for batch 1298902	88	66 - 120	
1202868470	MB for batch 1298902	93.2	66 - 120	
1202868471	LCS for batch 1298902	86.8	66 - 120	
1202868471	LCS for batch 1298902	94	66 - 120	
1202868472	CAPA-13-29667MS	90	66 - 120	
1202868472	CAPA-13-29667MS	96.8	66 - 120	
1202868473	CAPA-13-29667MSD	88.8	66 - 120	
1202868473	CAPA-13-29667MSD	102	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) 2013-778

Extract Batch Code: 1298902

Date Extracted: 02-MAY-13

GEL LCS ID: 1202868471

GEL LCSDUP ID: .

Analysis Date/Time: 14-MAY-13 12:24

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
1,3,5-Trinitrobenzene	5	4.7	94					62 - 114
2,4,6-Trinitrotoluene	5	5.1	102					72 - 124
2,4-Dinitrotoluene	5	4.96	99.2					75 - 119
2,6-Dinitrotoluene	5	4.69	93.8					77 - 111
2-Amino-4,6-dinitrotoluene	5	4.99	99.8					73 - 121
4-Amino-2,6-dinitrotoluene	5	4.95	99					72 - 122
DNX	5	4.43	88.6					72 - 117
HMX	5	4.55	91					66 - 110
MXN	5	4.68	93.6					67 - 125
Nitrobenzene	5	4.18	83.6					64 - 112
PETN	5	4.95	99					64 - 121
RDX	5	5.26	105					77 - 122
TNX	5	4.25	85					65 - 116
Tetryl	5	4.52	90.4					40 - 118
m-Dinitrobenzene	5	4.89	97.8					79 - 119
m-Nitrotoluene	5	4.19	83.8					59 - 115
o-Nitrotoluene	5	4.44	88.8					60 - 111
p-Nitrotoluene	5	4.41	88.2					61 - 113

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) 2013-778

Extract Batch Code: 1298902

Date Extracted: 02-MAY-13

GEL LCS ID: 1202868471

GEL LCSDUP ID: .

Analysis Date/Time: 17-MAY-13 21:48

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	5.05	101					61 - 105
2,6-Diamino-4-nitrotoluene	5	4.56	91.2					64 - 115
3,5-Dinitroaniline	5	5.11	102					73 - 112
TATB	2.5	1.98	79.2					32 - 169
tris(o-cresyl) phosphate	5	3.39	67.8					30 - 82

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

* Values outside of QC limits

3
High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAPA-13-29667

Lab Code: GEL

GEL Job No (SDG) 2013-778

Extract Batch Code: 1298902

Date Extracted: 02-MAY-13

GEL Spike ID: 1202868472

GEL SpikeDup ID: 1202868473

Analysis Date/Time: 14-MAY-13 13:34

MSD Analysis Date/Time: 14-MAY-13 14:09

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
p-Nitrotoluene	5.46448	0	4.84	88.6	4.85	85.8	.122	25	54 - 119
1,3,5-Trinitrobenzene	5.46448	0	4.98	91.2	5.25	93	5.29	25	58 - 121
2,4,6-Trinitrotoluene	5.46448	0	5.36	98	5.63	99.6	4.95	25	64 - 132
2-Amino-4,6-dinitrotoluene	5.46448	0	5.37	98.2	5.63	99.6	4.75	25	67 - 129
2,6-Dinitrotoluene	5.46448	0	5.34	97.8	5.55	98.2	3.74	25	74 - 117
2,4-Dinitrotoluene	5.46448	0	5.53	101	5.63	99.6	1.74	25	72 - 126
4-Amino-2,6-dinitrotoluene	5.46448	0	5.31	97.2	5.86	104	9.9	25	64 - 132
HMX	5.46448	0	5.16	94.4	5.12	90.6	.775	25	60 - 121
Nitrobenzene	5.46448	0	4.33	79.2	4.54	80.4	4.84	25	60 - 113
o-Nitrotoluene	5.46448	0	4.54	83	4.82	85.4	6.18	25	57 - 113
m-Nitrotoluene	5.46448	0	4.71	86.2	4.84	85.6	2.64	25	56 - 114
m-Dinitrobenzene	5.46448	0	5.37	98.2	5.53	97.8	2.93	25	73 - 126
Tetryl	5.46448	0	4.49	82.2	4.73	83.8	5.26	25	30 - 110
TNX	5.46448	0	4.5	82.4	4.52	80	.378	25	61 - 117
RDX	5.46448	0	5.78	106	5.95	105	2.96	25	64 - 137
PETN	5.46448	0	5.52	101	6.07	107	9.47	25	58 - 127
MNX	5.46448	0	5.07	92.8	5.05	89.4	.399	25	67 - 127
DNX	5.46448	0	4.87	89.2	4.86	86	.32	25	67 - 124

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

3
High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAPA-13-29667

Lab Code: GEL

GEL Job No (SDG) 2013-778

Extract Batch Code: 1298902

Date Extracted: 02-MAY-13

GEL Spike ID: 1202868472

GEL SpikeDup ID: 1202868473

Analysis Date/Time: 17-MAY-13 22:21

MSD Analysis Date/Time: 17-MAY-13 22:38

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-Diamino-6-nitrotoluene	5.46448	0	5.57	102	5.47	96.8	1.9	25	66 - 108
2,6-Diamino-4-nitrotoluene	5.46448	0	5.27	96.4	4.82	85.4	8.78	25	72 - 112
3,5-Dinitroaniline	5.46448	0	5.56	102	5.99	106	7.37	25	75 - 116
TATB	2.73224	0	2.32	84.8	2.45	86.8	5.66	25	32 - 96
tris(o-cresyl) phosphate	5.46448	.0238	4.13	75.2	4.33	76.2	4.65	25	30 - 80

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

Quality Control Data

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1298902

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868470

Sample Amount 1000 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513043.wiff

Date Analyzed: 14-MAY-13 11:49

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
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	0.250	U	0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	0.250	U	0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	0.250	U	0.080	0.250
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.250	U	0.080	0.250
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	0.250	U	0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.250	U	0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
5755-27-1	MNX	0.250	U	0.080	0.250
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	0.250	U	0.080	0.250
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	0.250	U	0.080	0.250
<i>80251-29-2</i>	<i>DNX</i>				
88-72-2	o-Nitrotoluene	0.250	U	0.082	0.250
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
98-95-3	Nitrobenzene	0.250	U	0.080	0.250
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	0.250	U	0.080	0.250
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1298902

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868470

Sample Amount 1000 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

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

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1298902

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868470

Sample Amount 1000 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170022.wiff

Date Analyzed: 17-MAY-13 21:31

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
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	1.00	U	0.300	1.00
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	1.00	U	0.300	1.00
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.50	U	0.500	2.50
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.50	U	0.500	2.50
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1298902

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868471

Sample Amount 1000 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513044.wiff

Date Analyzed: 14-MAY-13 12:24

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
98-95-3	Nitrobenzene	4.18		0.080	0.250
98-95-3	Nitrobenzene				
99-08-1	m-Nitrotoluene	4.19		0.080	0.250
99-08-1	m-Nitrotoluene				
13980-04-6	TNX	4.25		0.080	0.250
13980-04-6	TNX				
99-99-0	p-Nitrotoluene	4.41		0.150	0.500
99-99-0	p-Nitrotoluene				
80251-29-2	DNX	4.43		0.080	0.250
80251-29-2	DNX				
88-72-2	o-Nitrotoluene	4.44		0.082	0.250
88-72-2	o-Nitrotoluene				
479-45-8	Tetryl	4.52		0.080	0.500
479-45-8	Tetryl				
2691-41-0	HMX	4.55		0.080	0.250
2691-41-0	HMX				
5755-27-1	MNX	4.68		0.080	0.250
5755-27-1	MNX				
606-20-2	2,6-Dinitrotoluene	4.69		0.080	0.250
606-20-2	2,6-Dinitrotoluene				
99-35-4	1,3,5-Trinitrobenzene	4.7		0.080	0.250
99-35-4	1,3,5-Trinitrobenzene				
99-65-0	m-Dinitrobenzene	4.89		0.080	0.250
99-65-0	m-Dinitrobenzene				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.95		0.080	0.250
19406-51-0	4-Amino-2,6-dinitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1298902

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868471

Sample Amount 1000 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
78-11-5 <i>78-11-5</i>	PETN <i>PETN</i>	4.95		0.100	0.500
121-14-2 <i>121-14-2</i>	2,4-Dinitrotoluene <i>2,4-Dinitrotoluene</i>	4.96		0.080	0.250
35572-78-2 <i>35572-78-2</i>	2-Amino-4,6-dinitrotoluene <i>2-Amino-4,6-dinitrotoluene</i>	4.99		0.080	0.250
118-96-7 <i>118-96-7</i>	2,4,6-Trinitrotoluene <i>2,4,6-Trinitrotoluene</i>	5.1		0.080	0.250
121-82-4 <i>121-82-4</i>	RDX <i>RDX</i>	5.26		0.080	0.250

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1298902

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868471

Sample Amount 1000 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170023.wiff

Date Analyzed: 17-MAY-13 21:48

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.98		0.300	1.00
3058-38-6	TATB				
78-30-8	tris(o-cresyl) phosphate	3.39		0.300	1.00
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.56		0.500	2.50
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.05		0.500	2.50
6629-29-4	2,4-Diamino-6-nitrotoluene				
618-87-1	3,5-Dinitroaniline	5.11		0.300	1.00
618-87-1	3,5-Dinitroaniline				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667(324671006MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868472

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513046.wiff

Date Analyzed: 14-MAY-13 13:34

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
98-95-3	Nitrobenzene	4.33		0.0874	0.273
98-95-3	Nitrobenzene				
479-45-8	Tetryl	4.49		0.0874	0.546
479-45-8	Tetryl				
13980-04-6	TNX	4.5		0.0874	0.273
13980-04-6	TNX				
88-72-2	o-Nitrotoluene	4.54		0.0896	0.273
88-72-2	o-Nitrotoluene				
99-08-1	m-Nitrotoluene	4.71		0.0874	0.273
99-08-1	m-Nitrotoluene				
99-99-0	p-Nitrotoluene	4.84		0.164	0.546
99-99-0	p-Nitrotoluene				
80251-29-2	DNX	4.87		0.0874	0.273
80251-29-2	DNX				
99-35-4	1,3,5-Trinitrobenzene	4.98		0.0874	0.273
99-35-4	1,3,5-Trinitrobenzene				
5755-27-1	MNX	5.07		0.0874	0.273
5755-27-1	MNX				
2691-41-0	HMX	5.16		0.0874	0.273
2691-41-0	HMX				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.31		0.0874	0.273
19406-51-0	4-Amino-2,6-dinitrotoluene				
606-20-2	2,6-Dinitrotoluene	5.34		0.0874	0.273
606-20-2	2,6-Dinitrotoluene				
118-96-7	2,4,6-Trinitrotoluene	5.36		0.0874	0.273
118-96-7	2,4,6-Trinitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667(324671006MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868472

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
35572-78-2	2-Amino-4,6-dinitrotoluene	5.37		0.0874	0.273
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
99-65-0	m-Dinitrobenzene	5.37		0.0874	0.273
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
78-11-5	PETN	5.52		0.109	0.546
<i>78-11-5</i>	<i>PETN</i>				
121-14-2	2,4-Dinitrotoluene	5.53		0.0874	0.273
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	5.78		0.0874	0.273
<i>121-82-4</i>	<i>RDX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667(324671006MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868472

Sample Amount 915 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170025.wiff

Date Analyzed: 17-MAY-13 22:21

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	2.32		0.328	1.09
3058-38-6	TATB				
78-30-8	tris(o-cresyl) phosphate	4.13		0.328	1.09
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.27		0.546	2.73
59229-75-3	2,6-Diamino-4-nitrotoluene				
618-87-1	3,5-Dinitroaniline	5.56		0.328	1.09
618-87-1	3,5-Dinitroaniline				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.57		0.546	2.73
6629-29-4	2,4-Diamino-6-nitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667(324671006MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868473

Sample Amount 885 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0513047.wiff

Date Analyzed: 14-MAY-13 14:09

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
13980-04-6	TNX	4.52		0.0904	0.282
<i>13980-04-6</i>	<i>TNX</i>				
98-95-3	Nitrobenzene	4.54		0.0904	0.282
<i>98-95-3</i>	<i>Nitrobenzene</i>				
479-45-8	Tetryl	4.73		0.0904	0.565
<i>479-45-8</i>	<i>Tetryl</i>				
88-72-2	o-Nitrotoluene	4.82		0.0927	0.282
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-08-1	m-Nitrotoluene	4.84		0.0904	0.282
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-99-0	p-Nitrotoluene	4.85		0.169	0.565
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
80251-29-2	DNX	4.86		0.0904	0.282
<i>80251-29-2</i>	<i>DNX</i>				
5755-27-1	MXN	5.05		0.0904	0.282
<i>5755-27-1</i>	<i>MXN</i>				
2691-41-0	HMX	5.12		0.0904	0.282
<i>2691-41-0</i>	<i>HMX</i>				
99-35-4	1,3,5-Trinitrobenzene	5.25		0.0904	0.282
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	5.53		0.0904	0.282
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
606-20-2	2,6-Dinitrotoluene	5.55		0.0904	0.282
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	5.63		0.0904	0.282
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667(324671006MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868473

Sample Amount 885 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-14-2	2,4-Dinitrotoluene	5.63		0.0904	0.282
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.63		0.0904	0.282
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.86		0.0904	0.282
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
121-82-4	RDX	5.95		0.0904	0.282
<i>121-82-4</i>	<i>RDX</i>				
78-11-5	PETN	6.07		0.113	0.565
<i>78-11-5</i>	<i>PETN</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAPA-13-29667(324671006MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-778

Matrix: WATER

GEL Sample ID: 1202868473

Sample Amount 885 mL

Date Received: 27-APR-13

Moisture: .

Extraction Batch ID: 1298902

Extraction Type Sol Exchange

Date Extracted: 02-MAY-13

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS05170026.wiff

Date Analyzed: 17-MAY-13 22:38

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	2.45		0.339	1.13
3058-38-6	TATB				
78-30-8	tris(o-cresyl) phosphate	4.33		0.339	1.13
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.82		0.565	2.82
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.47		0.565	2.82
6629-29-4	2,4-Diamino-6-nitrotoluene				
618-87-1	3,5-Dinitroaniline	5.99		0.339	1.13
618-87-1	3,5-Dinitroaniline				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2013-778Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 13-MAY-13 11:19GEL Data File: EXP0513001.wiffInstrument ID: LCMSMSColumn: 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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2013-778Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 13-MAY-13 11:54GEL Data File: EXP0513002.wiffInstrument ID: LCMSMSColumn: 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 LLCGEL Job No(SDG): 2013-778Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 17-MAY-13 15:40GEL Data File: EXS05170001.wiffInstrument ID: LCMSMSColumn: 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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2013-778Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 17-MAY-13 15:57GEL Data File: EXS05170002.wiffInstrument ID: LCMSMSColumn: 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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 13-MAY-13 15:59

GEL Data File: EXP0513009.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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 13-MAY-13 17:09

GEL Data File: EXP0513011.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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 14-MAY-13 00:08

GEL Data File: EXP0513023.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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 14-MAY-13 06:34

GEL Data File: EXP0513034.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
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
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 14-MAY-13 10:39

GEL Data File: EXP0513041.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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK07

Analysis Date: 14-MAY-13 17:05

GEL Data File: EXP0513052.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
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
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 17-MAY-13 18:11

GEL Data File: EXS05170010.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	9.65
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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 17-MAY-13 18:44

GEL Data File: EXS05170012.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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 17-MAY-13 20:58

GEL Data File: EXS05170020.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	3.61
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): 2013-778

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 18-MAY-13 00:02

GEL Data File: EXS05170031.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	2.73
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 2013-778**

Sample Analysis

Sample ID	Client ID
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202867557	Method Blank (MB) ICP
1202867558	Laboratory Control Sample (LCS)
1202867561	324671009(CAPA-13-29678L) Serial Dilution (SD)
1202867559	324671009(CAPA-13-29678D) Sample Duplicate (DUP)
1202867560	324671009(CAPA-13-29678S) Matrix Spike (MS)
1202867562	Method Blank (MB) ICP-MS
1202867563	Laboratory Control Sample (LCS)
1202867566	324671009(CAPA-13-29678L) Serial Dilution (SD)
1202867564	324671009(CAPA-13-29678D) Sample Duplicate (DUP)
1202867565	324671009(CAPA-13-29678S) Matrix Spike (MS)
1202874791	Method Blank (MB) CVAA
1202874792	Laboratory Control Sample (LCS)
1202874795	324671009(CAPA-13-29678L) Serial Dilution (SD)
1202874793	324671009(CAPA-13-29678D) Sample Duplicate (DUP)
1202874794	324671009(CAPA-13-29678S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1298549, 1298551, 1301314 and 1303342
Prep Batch :	1298546, 1298550 and 1301303
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 6100E 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 - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

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

Calibration Information

Instrument Calibration

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

CRDL Requirements

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

ICSA/ICSAB Statement

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

Continuing Calibration Blank (CCB) Requirements

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

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 324671009 (CAPA-13-29678).

Matrix Spike (MS) Recovery Statement

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

Duplicate Relative Percent Difference (RPD) Statement

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

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element

concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications

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

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Sample 324671009 required a dilution for tin in order to minimize suppression due to matrix interferences.

Preparation Information

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

Miscellaneous Information

Electronic Packaging Comment

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

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

Data Exception (DER) Documentation

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

Additional Comments

Additional comments were not required for this SDG.

Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

$$\text{Hardness} = 2.497 (\text{Ca}) + 4.118 (\text{Mg})$$

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: 05/22/13

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: 2013-778 GEL Work Order: 324671

The Qualifiers in this report are defined as follows:

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

J Value is estimated

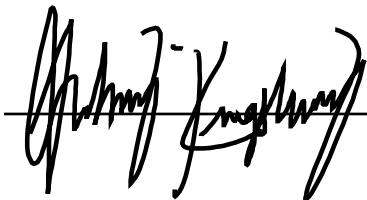
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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

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

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

Reviewed by



05/22/13

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:** EPA**SAMPLE ID:** 324671009**BASIS:** As Received**DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29678**LEVEL:** Low**DATE RECEIVED** 27-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	NOR1	05/14/13 11:17	051413W2-4	1301314

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778

CONTRACT: ESHL00210

METHOD TYPE: SW846

SAMPLE ID: 324671009

BASIS: As Received

DATE COLLECTED 25-APR-13

CLIENT ID: CAPA-13-29678

LEVEL: Low

DATE RECEIVED 27-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	200	ug/L	U	68	200	200	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-39-3	Barium	37.4	ug/L		1	5	5	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-70-2	Calcium	10100	ug/L		50	200	200	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-47-3	Chromium	10	ug/L	U	2	10	10	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7439-89-6	Iron	82.7	ug/L	J	30	100	100	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7439-95-4	Magnesium	2960	ug/L		110	300	300	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7439-98-7	Molybdenum	1.21	ug/L		0.165	0.5	0.5	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-02-0	Nickel	5.13	ug/L		0.5	2	2	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-09-7	Potassium	1640	ug/L		50	150	150	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7631-86-9	Silica	74200	ug/L		53	213	213	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-23-5	Sodium	11900	ug/L		100	300	300	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-24-6	Strontium	44.1	ug/L		1	5	5	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	05/18/13 19:15	130518-3	1298551
7440-31-5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	05/17/13 10:43	051713B-1	1298549
7440-61-1	Uranium	0.494	ug/L		0.067	0.2	0.2	1	MS	SKJ	05/20/13 13:10	130520-2	1298551
7440-62-2	Vanadium	5.77	ug/L		1	5	5	1	P	HSC	05/17/13 10:00	051713B-1	1298549
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/17/13 10:00	051713B-1	1298549

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:****SAMPLE ID:** 324671009 **BASIS:** As Received **DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29678 **LEVEL:** Low **DATE RECEIVED** 27-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	37.3	mg/L		0.453	1.24	1.24	1		JJ2	05/21/13 16:13		1303342

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1298549	1298546	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1298551	1298550	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1301314	1301303	EPA 245.1/245.2 Prep	20	mL	20	mL	05/13/13	AXS5

***Analytical Methods:**

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

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:** EPA**SAMPLE ID:** 324671010**BASIS:** As Received**DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29652**LEVEL:** Low**DATE RECEIVED** 27-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	NOR1	05/14/13 11:23	051413W2-4	1301314

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778

CONTRACT: ESHL00210

METHOD TYPE: SW846

SAMPLE ID: 324671010

BASIS: As Received

DATE COLLECTED 25-APR-13

CLIENT ID: CAPA-13-29652

LEVEL: Low

DATE RECEIVED 27-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	200	ug/L	U	68	200	200	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-38-2	Arsenic	1.81	ug/L	J	1.7	5	5	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-39-3	Barium	36.9	ug/L		1	5	5	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-70-2	Calcium	9960	ug/L		50	200	200	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-47-3	Chromium	10	ug/L	U	2	10	10	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7439-89-6	Iron	81.9	ug/L	J	30	100	100	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7439-95-4	Magnesium	2890	ug/L		110	300	300	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7439-98-7	Molybdenum	1.22	ug/L		0.165	0.5	0.5	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-02-0	Nickel	5.19	ug/L		0.5	2	2	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-09-7	Potassium	1580	ug/L		50	150	150	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7631-86-9	Silica	73500	ug/L		53	213	213	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-23-5	Sodium	11700	ug/L		100	300	300	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-24-6	Strontium	43.7	ug/L		1	5	5	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	05/18/13 19:54	130518-3	1298551
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-61-1	Uranium	0.496	ug/L		0.067	0.2	0.2	1	MS	SKJ	05/20/13 13:29	130520-2	1298551
7440-62-2	Vanadium	5.28	ug/L		1	5	5	1	P	HSC	05/17/13 10:13	051713B-1	1298549
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/17/13 10:13	051713B-1	1298549

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:****SAMPLE ID:** 324671010**BASIS:** As Received**DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29652**LEVEL:** Low**DATE RECEIVED** 27-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	36.8	mg/L		0.453	1.24	1.24	1		JJ2	05/21/13 16:13		1303342

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1298549	1298546	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1298551	1298550	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1301314	1301303	EPA 245.1/245.2 Prep	20	mL	20	mL	05/13/13	AXS5

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

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:** EPA**SAMPLE ID:** 324671011**BASIS:** As Received**DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29679**LEVEL:** Low**DATE RECEIVED** 27-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	NOR1	05/14/13 11:25	051413W2-4	1301314

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778

CONTRACT: ESHL00210

METHOD TYPE: SW846

SAMPLE ID: 324671011

BASIS: As Received

DATE COLLECTED 25-APR-13

CLIENT ID: CAPA-13-29679

LEVEL: Low

DATE RECEIVED 27-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	200	ug/L	U	68	200	200	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-39-3	Barium	29.7	ug/L		1	5	5	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-70-2	Calcium	8910	ug/L		50	200	200	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-47-3	Chromium	4.1	ug/L	J	2	10	10	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7439-95-4	Magnesium	2880	ug/L		110	300	300	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7439-98-7	Molybdenum	1.09	ug/L		0.165	0.5	0.5	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-02-0	Nickel	1.11	ug/L	J	0.5	2	2	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-09-7	Potassium	2450	ug/L		50	150	150	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7631-86-9	Silica	76600	ug/L		53	213	213	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-22-4	Silver	0.225	ug/L	J	0.2	1	1	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-23-5	Sodium	10400	ug/L		100	300	300	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-24-6	Strontium	42.5	ug/L		1	5	5	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	05/18/13 20:01	130518-3	1298551
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-61-1	Uranium	0.452	ug/L		0.067	0.2	0.2	1	MS	SKJ	05/20/13 13:32	130520-2	1298551
7440-62-2	Vanadium	7.96	ug/L		1	5	5	1	P	HSC	05/17/13 10:16	051713B-1	1298549
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/17/13 10:16	051713B-1	1298549

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:****SAMPLE ID:** 324671011 **BASIS:** As Received **DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29679 **LEVEL:** Low **DATE RECEIVED** 27-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	34.1	mg/L		0.453	1.24	1.24	1		JJ2	05/21/13 16:13		1303342

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1298549	1298546	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1298551	1298550	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1301314	1301303	EPA 245.1/245.2 Prep	20	mL	20	mL	05/13/13	AXS5

***Analytical Methods:**

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

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:** EPA**SAMPLE ID:** 324671012**BASIS:** As Received**DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29653**LEVEL:** Low**DATE RECEIVED** 27-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	NOR1	05/14/13 11:30	051413W2-4	1301314

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778

CONTRACT: ESHL00210

METHOD TYPE: SW846

SAMPLE ID: 324671012

BASIS: As Received

DATE COLLECTED 25-APR-13

CLIENT ID: CAPA-13-29653

LEVEL: Low

DATE RECEIVED 27-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	200	ug/L	U	68	200	200	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-39-3	Barium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-70-2	Calcium	200	ug/L	U	50	200	200	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-47-3	Chromium	10	ug/L	U	2	10	10	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7439-95-4	Magnesium	300	ug/L	U	110	300	300	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7439-98-7	Molybdenum	0.50	ug/L	U	0.165	0.5	0.5	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-02-0	Nickel	2	ug/L	U	0.5	2	2	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-09-7	Potassium	150	ug/L	U	50	150	150	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7631-86-9	Silica	213	ug/L	U	53	213	213	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-23-5	Sodium	300	ug/L	U	100	300	300	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-24-6	Strontium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	05/18/13 20:07	130518-3	1298551
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-61-1	Uranium	0.20	ug/L	U	0.067	0.2	0.2	1	MS	SKJ	05/20/13 13:35	130520-2	1298551
7440-62-2	Vanadium	5	ug/L	U	1	5	5	1	P	HSC	05/17/13 10:19	051713B-1	1298549
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	05/17/13 10:19	051713B-1	1298549

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-778**CONTRACT:** ESHL00210**METHOD TYPE:****SAMPLE ID:** 324671012 **BASIS:** As Received **DATE COLLECTED** 25-APR-13**CLIENT ID:** CAPA-13-29653 **LEVEL:** Low **DATE RECEIVED** 27-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	1.24	mg/L	U	0.453	1.24	1.24	1		JJ2	05/21/13 16:13		1303342

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1298549	1298546	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1298551	1298550	SW846 3005A	50	mL	50	mL	05/16/13	AXG2
1301314	1301303	EPA 245.1/245.2 Prep	20	mL	20	mL	05/13/13	AXS5

***Analytical Methods:**

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

Quality Control Summary

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 2013-778
Contract: ESHL00210
Matrix: W

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Acceptance Window</u>	<u>Conc Qual</u>	<u>M*</u>	<u>MDL</u>	<u>RDL</u>
1202867557								
	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
	Magnesium	110	ug/L	+/-300	U	P	110	300
	Barium	1	ug/L	+/-5	U	P	1	5
	Boron	15	ug/L	+/-50	U	P	15	50
	Cobalt	1	ug/L	+/-5	U	P	1	5
	Copper	3	ug/L	+/-10	U	P	3	10
	Calcium	50	ug/L	+/-200	U	P	50	200
	Beryllium	1	ug/L	+/-5	U	P	1	5
	Aluminum	68	ug/L	+/-200	U	P	68	200
	Iron	30	ug/L	+/-100	U	P	30	100
	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
1202867562								
	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	0.188	ug/L	+/-0.5	J	MS	0.165	0.5
	Nickel	0.5	ug/L	+/-2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/-5	U	MS	1.5	5
	Silver	0.2	ug/L	+/-1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/-2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/-0.2	U	MS	0.067	0.2
1202874791								
	Mercury	0.067	ug/L	+/-0.2	U	AV	0.067	0.2

***Analytical Methods:**

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

METALS

-5a-

Matrix Spike Summary

SDG NO. 2013-778

Client ID: CAPA-13-29678S

Contract: ESHL00210

Level: Low

Matrix: WATER

% Solids:

Sample ID: 324671009

Spike ID: 1202867560

<u>Analyte</u>	<u>Units</u>	<u>Acceptance Limit</u>	<u>Spiked Result</u>	<u>C</u>	<u>Sample Result</u>	<u>C</u>	<u>Spike Added</u>	<u>% Recovery</u>	<u>Qual</u>	<u>M*</u>
Aluminum	ug/L	75-125	5260		68	U	5000	105		P
Barium	ug/L	75-125	542		37.4		500	101		P
Beryllium	ug/L	75-125	514		1	U	500	103		P
Boron	ug/L	75-125	514		15	U	500	100		P
Calcium	ug/L	75-125	15200		10100		5000	102		P
Cobalt	ug/L	75-125	501		1	U	500	100		P
Copper	ug/L	75-125	532		3	U	500	106		P
Iron	ug/L	75-125	5330		82.7	J	5000	105		P
Magnesium	ug/L	75-125	8120		2960		5000	103		P
Manganese	ug/L	75-125	515		2	U	500	103		P
Potassium	ug/L	75-125	6770		1640		5000	103		P
Silica	ug/L		86400		74200		10700	114	N/A	P
Sodium	ug/L	75-125	17300		11900		5000	108		P
Strontium	ug/L	75-125	569		44.1		500	105		P
Tin	ug/L	75-125	503		12.5	U	500	101		P
Vanadium	ug/L	75-125	528		5.77		500	104		P
Zinc	ug/L	75-125	514		3.3	U	500	103		P

*Analytical Methods:

P SW846 3005/6010B

METALS

-5a-

Matrix Spike Summary

SDG NO. 2013-778

Client ID: CAPA-13-29678S

Contract: ESHL00210

Level: Low

Matrix: WATER

% Solids:

Sample ID: 324671009

Spike ID: 1202867565

<u>Analyte</u>	<u>Units</u>	<u>Acceptance Limit</u>	<u>Spiked Result</u>	<u>C</u>	<u>Sample Result</u>	<u>C</u>	<u>Spike Added</u>	<u>% Recovery</u>	<u>Qual</u>	<u>M*</u>
Lead	ug/L	75-125	50.1		0.5	U	50	100		MS
Molybdenum	ug/L	75-125	49.9		1.21		50	97.5		MS
Nickel	ug/L	75-125	53		5.13		50	95.8		MS
Selenium	ug/L	75-125	50.6		1.5	U	50	101		MS
Silver	ug/L	75-125	51.9		0.2	U	50	104		MS
Thallium	ug/L	75-125	46.5		0.45	U	50	92.9		MS
Uranium	ug/L	75-125	51.3		0.494		50	102		MS
Antimony	ug/L	75-125	51.8		1	U	50	103		MS
Arsenic	ug/L	75-125	48.3		1.7	U	50	94.4		MS
Cadmium	ug/L	75-125	50.6		0.11	U	50	101		MS
Chromium	ug/L	75-125	48.9		2	U	50	94.3		MS

*Analytical Methods:

MS SW846 3005/6020 DOE-AL

METALS

-5a-

Matrix Spike Summary

SDG NO. 2013-778

Client ID: CAPA-13-29678S

Contract: ESHL00210

Level: Low

Matrix: WATER

% Solids:

Sample ID: 324671009

Spike ID: 1202874794

<u>Analyte</u>	<u>Units</u>	<u>Acceptance Limit</u>	<u>Spiked Result</u>	<u>C</u>	<u>Sample Result</u>	<u>C</u>	<u>Spike Added</u>	<u>% Recovery</u>	<u>Qual</u>	<u>M*</u>
Mercury	ug/L	75-125	2.18		0.067	U	2	109		AV

*Analytical Methods:

AV EPA 245.1/245.2

Metals
–6–
Duplicate Sample Summary

SDG No.: 2013–778

Lab Code: GEL

Contract: ESHL00210

Client ID: CAPA–13–29678D

Matrix: LIQUID

Level: Low

Sample ID: 324671009

Duplicate ID: 1202867559

Percent Solids for Dup: N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68 U		68 U				P
Barium	ug/L	+/-20%	37.4		37.2		.472		P
Beryllium	ug/L		1 U		1 U				P
Boron	ug/L		15 U		15 U				P
Calcium	ug/L	+/-20%	10100		10000		.567		P
Cobalt	ug/L		1 U		1 U				P
Copper	ug/L		3 U		3 U				P
Iron	ug/L	+/-100	82.7 J		83.8 J		1.29		P
Magnesium	ug/L	+/-20%	2960		2910		1.63		P
Manganese	ug/L		2 U		2 U				P
Potassium	ug/L	+/-20%	1640		1590		2.98		P
Silica	ug/L	+/-20%	74200		74400		.221		P
Sodium	ug/L	+/-20%	11900		12000		.218		P
Strontium	ug/L	+/-20%	44.1		44		.109		P
Tin	ug/L		12.5 U		12.5 U				P
Vanadium	ug/L	+/-5	5.77		4.88 J		16.6		P
Zinc	ug/L		3.3 U		3.3 U				P

*Analytical Methods:

P SW846 3005/6010B

Metals
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Duplicate Sample Summary

SDG No.: 2013-778

Lab Code: GEL

Contract: ESHL00210

Client ID: CAPA-13-29678D

Matrix: LIQUID

Level: Low

Sample ID: 324671009

Duplicate ID: 1202867564

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	1.21		1.14		5.54		MS
Nickel	ug/L	+/- 2	5.13		5.16		.602		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	0.494		0.484		2.04		MS

*Analytical Methods:

MS SW846 3005/6020 DOE-AL

Metals
–6–
Duplicate Sample Summary

SDG No.: 2013–778**Lab Code:** GEL**Contract:** ESHL00210**Client ID:** CAPA–13–29678D**Matrix:** LIQUID**Level:** Low**Sample ID:** 324671009**Duplicate ID:** 1202874793**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

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Laboratory Control Sample Summary

SDG NO. 2013-778

Contract: ESHL00210

Aqueous LCS Source:OS2I

Solid LCS Source:

<u>Sample ID</u>	<u>Analyte</u>	<u>Units</u>	<u>True Value</u>	<u>Result</u>	<u>C</u>	<u>% Recovery</u>	<u>Acceptance Limit</u>	<u>M*</u>
1202867558	Potassium	ug/L	5000	5170		103	80-120	P
	Silica	ug/L	10700	10800		100	80-120	P
	Sodium	ug/L	5000	5180		104	80-120	P
	Strontium	ug/L	500	517		103	80-120	P
	Tin	ug/L	500	503		101	80-120	P
	Vanadium	ug/L	500	512		102	80-120	P
	Zinc	ug/L	500	502		100	80-120	P
	Aluminum	ug/L	5000	5240		105	80-120	P
	Barium	ug/L	500	498		99.6	80-120	P
	Beryllium	ug/L	500	499		99.7	80-120	P
	Boron	ug/L	500	488		97.7	80-120	P
	Calcium	ug/L	5000	5120		102	80-120	P
	Cobalt	ug/L	500	495		99	80-120	P
	Copper	ug/L	500	511		102	80-120	P
	Iron	ug/L	5000	5130		103	80-120	P
	Magnesium	ug/L	5000	5150		103	80-120	P
	Manganese	ug/L	500	509		102	80-120	P

*Analytical Methods:

P SW846 3005/6010B

METALS

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Laboratory Control Sample Summary

SDG NO. 2013-778

Contract: ESHL00210

Aqueous LCS Source: O2Si

Solid LCS Source:

<u>Sample ID</u>	<u>Analyte</u>	<u>Units</u>	<u>True Value</u>	<u>Result</u>	<u>C</u>	<u>% Recovery</u>	<u>Acceptance Limit</u>	<u>M*</u>
1202867563								
	Antimony	ug/L	50	51.8		104	80-120	MS
	Arsenic	ug/L	50	49.6		99.2	80-120	MS
	Cadmium	ug/L	50	52.2		104	80-120	MS
	Chromium	ug/L	50	50.2		100	80-120	MS
	Lead	ug/L	50	51.3		103	80-120	MS
	Molybdenum	ug/L	50	47.6		95.3	80-120	MS
	Nickel	ug/L	50	52.3		105	80-120	MS
	Selenium	ug/L	50	54.3		109	80-120	MS
	Silver	ug/L	50	51.8		104	80-120	MS
	Thallium	ug/L	50	47.7		95.4	80-120	MS
	Uranium	ug/L	50	52.2		104	80-120	MS

*Analytical Methods:

MS SW846 3005/6020 DOE-AL

METALS

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Laboratory Control Sample Summary

SDG NO. 2013-778

Contract: ESHL00210

Aqueous LCS Source: GEL

Solid LCS Source:

<u>Sample ID</u>	<u>Analyte</u>	<u>Units</u>	<u>True Value</u>	<u>Result</u>	<u>C</u>	<u>% Recovery</u>	<u>Acceptance Limit</u>	<u>M*</u>
1202874792	Mercury	ug/L	2	2.05		103	85-115	AV

*Analytical Methods:

AV EPA 245.1/245.2

METALS

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Serial Dilution Sample Summary

SDG NO. 2013-778

Client ID: CAPA-13-29678L

Contract: ESHL00210

Matrix: LIQUID

Level: Low

Sample ID: 324671009

Serial Dilution ID: 1202867561

<u>Analyte</u>	<u>Initial Value ug/L</u>	<u>C</u>	<u>Serial Value ug/L</u>	<u>C</u>	<u>% Difference</u>	<u>Qual</u>	<u>Acceptance Limit</u>	<u>M*</u>
Aluminum	68	U	340	U				P
Barium	37.4		37.9		1.35			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10100		9910		1.6		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	82.7	J	150	U	100			P
Magnesium	2960		3070		3.71			P
Manganese	2	U	10	U				P
Potassium	1640		1750		6.37			P
Silica	74200		74200		.024		10	P
Sodium	11900		11800		.885		10	P
Strontium	44.1		43.1		2.13			P
Tin	2.5	U	12.5	U				P
Vanadium	5.77		6.63	J	14.9			P
Zinc	3.3	U	16.5	U				P

*Analytical Methods:

P SW846 3005/6010B

METALS

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Serial Dilution Sample Summary

SDG NO. 2013-778

Client ID: CAPA-13-29678L

Contract: ESHL00210

Matrix: LIQUID

Level: Low

Sample ID: 324671009

Serial Dilution ID: 1202867566

<u>Analyte</u>	<u>Initial Value ug/L</u>	<u>C</u>	<u>Serial Value ug/L</u>	<u>C</u>	<u>% Difference</u>	<u>Qual</u>	<u>Acceptance Limit</u>	<u>M*</u>
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	1.21		1.8	J	49.3			MS
Nickel	5.13		5.45	J	6.12			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.494		.58	J	17.4			MS

*Analytical Methods:

MS SW846 3005/6020 DOE-AL

METALS

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Serial Dilution Sample Summary

SDG NO. 2013-778 **Client ID:** CAPA-13-29678L**Contract:** ESHL00210**Matrix:** LIQUID **Level:** Low**Sample ID:** 324671009 **Serial Dilution ID:** 1202874795

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

*Analytical Methods:

AV EPA 245.1/245.2

General Chem Analysis

Case Narrative

**General Chemistry Narrative
ARS International (ARSL)
SDG 2013-778**

Method/Analysis Information

Product: Carbon, Total Organic

Analytical Batch: 1298028

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
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202866144	Method Blank (MB)
1202866145	324498001(CAPA-13-29662) Sample Duplicate (DUP)
1202866147	324498001(CAPA-13-29662) Post Spike (PS)
1202866149	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: 324498001 (CAPA-13-29662).

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: Specific Conductivity

Analytical Batch: 1298042

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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202866186	324498002(CAPA-13-29673) Sample Duplicate (DUP)
1202866187	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: 324498002 (CAPA-13-29673).

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: 1298053 **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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202866216	324591002(CAPA-13-30298) Sample Duplicate (DUP)
1202866217	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: 324591002 (CAPA-13-30298).

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: 1202866216 (CAPA-13-30298), 324671009 (CAPA-13-29678), 324671010 (CAPA-13-29652), 324671011 (CAPA-13-29679) and 324671012 (CAPA-13-29653).

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: 1182553 1202866216 (CAPA-13-30298), 324671009 (CAPA-13-29678), 324671010 (CAPA-13-29652), 324671011 (CAPA-13-29679) and 324671012 (CAPA-13-29653).

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: 1297394

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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202864646	Method Blank (MB)
1202864647	324498002(CAPA-13-29673) Sample Duplicate (DUP)
1202864648	324498002(CAPA-13-29673) Post Spike (PS)
1202864649	Laboratory Control Sample (LCS)

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

SOP Reference

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

Preparation/Analytical Method Verification

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

Calibration Information

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

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

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

Calibration Verification Information (CCV)

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

Y Intercept Rule

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

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 324498002 (CAPA-13-29673).

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

The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202864648 (CAPA-13-29673).

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: 1202864647 (CAPA-13-29673) and 1202864648 (CAPA-13-29673).

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: 1187095 1202864648 (CAPA-13-29673).

Manual Integrations

The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202864649 (LCS), 324671009 (CAPA-13-29678), 324671010 (CAPA-13-29652) and 324671011 (CAPA-13-29679).

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: 1298091 **Method:** EPA 350.1 Nitrogen and Ammonia L

Prep Batch : 1298090 **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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202866339	Method Blank (MB)
1202866340	324498002(CAPA-13-29673) Sample Duplicate (DUP)
1202866342	324498002(CAPA-13-29673) Matrix Spike (MS)
1202866344	Laboratory Control Sample (LCS)

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

SOP Reference

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

Preparation/Analytical Method Verification

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

Calibration Information

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

Initial Calibration

All initial calibration requirements have been met for this SDG.

Calibration Verification Information

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

Continuing Calibration Blanks

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

Calibration Verification Information (CCV)

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

Y Intercept Rule

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 324498002 (CAPA-13-29673).

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

The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202866340 (CAPA-13-29673).

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

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

Miscellaneous Information

Data Exception (DER) Documentation

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

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

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

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

Method/Analysis Information

Product:	Total Kjeldahl Nitrogen		
Analytical Batch:	1299346	Method:	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1299345	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
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202869531	Method Blank (MB)
1202869532	Laboratory Control Sample (LCS)
1202869533	324671006(CAPA-13-29667) Sample Duplicate (DUP)
1202869534	324671006(CAPA-13-29667) 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: 324671006 (CAPA-13-29667).

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

The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202869533 (CAPA-13-29667).

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The following sample was re-analyzed due to instrument failure: 324671006 (CAPA-13-29667).

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:	Nitrate Nitrite by Cadmium Reduction		
Analytical Batch:	1298397	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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202867215	Method Blank (MB)
1202867216	324498002(CAPA-13-29673) Sample Duplicate (DUP)
1202867218	324498002(CAPA-13-29673) Post Spike (PS)
1202867220	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: 324498002 (CAPA-13-29673).

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

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

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following sample in this sample group was diluted due to high concentration: 324671011 (CAPA-13-29679).

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:	1299313	Method:	EPA 365.4 Phosphorus and Total in
Prep Batch :	1299311	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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202869465	Method Blank (MB)
1202869466	Laboratory Control Sample (LCS)
1202869467	324671009(CAPA-13-29678) Sample Duplicate (DUP)
1202869468	324671009(CAPA-13-29678) 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 sample was selected for QC analysis: 324671009 (CAPA-13-29678).

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

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

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

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

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The following sample was re-analyzed due to instrument failure: 1202869465 (MB).

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: 1298014

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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202866120	Method Blank (MB)
1202866123	Laboratory Control Sample (LCS)
1202866184	324671011(CAPA-13-29679) Sample Duplicate (DUP)

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

SOP Reference

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

Preparation/Analytical Method Verification

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

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration

All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 324671011 (CAPA-13-29679).

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: 1300354 **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
324671009	CAPA-13-29678
324671010	CAPA-13-29652
324671011	CAPA-13-29679
324671012	CAPA-13-29653
1202872267	Laboratory Control Sample (LCS)
1202872270	324671010(CAPA-13-29652) Sample Duplicate (DUP)
1202872271	324671010(CAPA-13-29652) 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: 324671010 (CAPA-13-29652).

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

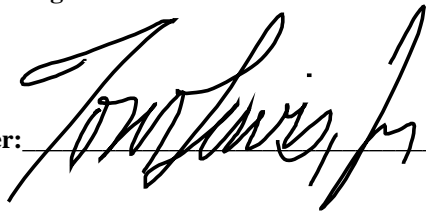
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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:

24May13

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis Report for

ARSL001 ARS International (63641-10)

Client SDG: 2013-778 GEL Work Order: 324671

The Qualifiers in this report are defined as follows:

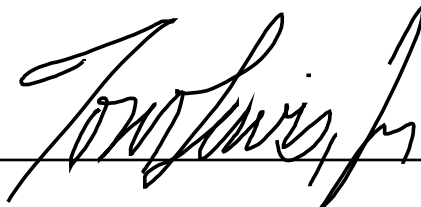
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- ** Analyte is a surrogate compound
- E Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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

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

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

Reviewed by



GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29667

Sample ID: 324671006

Matrix: W

Collect Date: 25-APR-13 12:41

Receive Date: 27-APR-13

Collector: Client

Project: ESHL00210

Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.22	0.330	1.00	mg/L	1	TSM	04/29/13	2045	1298028	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/07/13	1634	1299346	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	05/06/13	1700	1299345

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29651
Sample ID: 324671007
Matrix: W
Collect Date: 25-APR-13 12:41
Receive Date: 27-APR-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.25	0.330	1.00	mg/L	1	TSM	04/29/13	2119	1298028	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/07/13	1635	1299346	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	05/06/13	1700	1299345

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29668
Sample ID: 324671008
Matrix: W
Collect Date: 25-APR-13 14:18
Receive Date: 27-APR-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.753	0.330	1.00	mg/L	1	TSM	04/29/13	2152	1298028	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/07/13	1635	1299346	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	05/06/13	1700	1299345

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29678
Sample ID: 324671009
Matrix: W
Collect Date: 25-APR-13 12:41
Receive Date: 27-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		124	1.00	1.00	umhos/cm	1	LXA1	04/29/13	1659	1298042	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 16.1C	H	8.00	0.010	0.100	SU	1	LYG1	04/29/13	0943	1298053	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	05/14/13	0952	1297394	3
Chloride		1.96	0.067	0.200	mg/L	1					
Fluoride		0.189	0.033	0.100	mg/L	1					
Sulfate		1.94	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.182	0.017	0.050	mg/L	1	KLP1	05/15/13	1612	1298091	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.172	0.017	0.050	mg/L	1	KLP1	05/14/13	1204	1298397	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0632	0.017	0.050	mg/L	1	KLP1	05/07/13	1249	1299313	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids	U	ND	3.40	14.3	mg/L		LYG1	04/29/13	1049	1298014	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		61.9	0.725	1.00	mg/L		LXA1	05/08/13	1506	1300354	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	05/15/13	1500	1298090
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/06/13	1700	1299311

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29678
Sample ID: 324671009

Project: ESHL00210
Client ID: ARSL001

The following Analytical Methods were performed:

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

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29652
Sample ID: 324671010
Matrix: W
Collect Date: 25-APR-13 12:41
Receive Date: 27-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		125	1.00	1.00	umhos/cm	1	LXA1	04/29/13	1659	1298042	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 16.2C	H	7.98	0.010	0.100	SU	1	LYG1	04/29/13	0944	1298053	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	05/14/13	1022	1297394	3
Chloride		1.95	0.067	0.200	mg/L	1					
Fluoride		0.177	0.033	0.100	mg/L	1					
Sulfate		1.91	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0429	0.017	0.050	mg/L	1	KLP1	05/15/13	1613	1298091	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.176	0.017	0.050	mg/L	1	KLP1	05/14/13	1205	1298397	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0595	0.017	0.050	mg/L	1	KLP1	05/07/13	1252	1299313	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		124	3.40	14.3	mg/L		LYG1	04/29/13	1049	1298014	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		58.9	0.725	1.00	mg/L		LXA1	05/08/13	1511	1300354	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	05/15/13	1500	1298090
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/06/13	1700	1299311

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29652
Sample ID: 324671010

Project: ESHL00210
Client ID: ARSL001

The following Analytical Methods were performed:

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

Notes:

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

Client SDG: 2013-778

Client Sample ID: CAPA-13-29679
Sample ID: 324671011
Matrix: W
Collect Date: 25-APR-13 14:18
Receive Date: 27-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		115	1.00	1.00	umhos/cm	1	LXA1	04/29/13	1700	1298042	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 16.9C	H	8.00	0.010	0.100	SU	1	LYG1	04/29/13	0946	1298053	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	05/14/13	1052	1297394	3
Chloride		1.70	0.067	0.200	mg/L	1					
Fluoride		0.153	0.033	0.100	mg/L	1					
Sulfate		1.78	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0716	0.017	0.050	mg/L	1	KLP1	05/15/13	1614	1298091	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		326	8.50	25.0	mg/L	500	KLP1	05/14/13	1206	1298397	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0665	0.017	0.050	mg/L	1	KLP1	05/07/13	1253	1299313	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		120	3.40	14.3	mg/L		LYG1	04/29/13	1049	1298014	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		55.3	0.725	1.00	mg/L		LXA1	05/08/13	1523	1300354	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	05/15/13	1500	1298090
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/06/13	1700	1299311

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Certificate of Analysis

Report Date: May 22, 2013

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TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-778

Client Sample ID: CAPA-13-29679
Sample ID: 324671011

Project: ESHL00210
Client ID: ARSL001

The following Analytical Methods were performed:

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

Notes:

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29653
Sample ID: 324671012
Matrix: W
Collect Date: 25-APR-13 15:40
Receive Date: 27-APR-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.800	0.330	1.00	mg/L	1	TSM	04/29/13	2226	1298028	1
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		1.27	1.00	1.00	umhos/cm	1	LXA1	04/29/13	1700	1298042	2
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 17.7C	H	5.74	0.010	0.100	SU	1	LYG1	04/29/13	0948	1298053	3
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	05/14/13	1122	1297394	4
Chloride	U	ND	0.067	0.200	mg/L	1					
Fluoride	U	ND	0.033	0.100	mg/L	1					
Sulfate	U	ND	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0647	0.017	0.050	mg/L	1	KLP1	05/15/13	1615	1298091	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	U	ND	0.017	0.050	mg/L	1	KLP1	05/14/13	1207	1298397	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0317	0.017	0.050	mg/L	1	KLP1	05/07/13	1253	1299313	7
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	05/07/13	1636	1299346	8
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids	U	ND	3.40	14.3	mg/L		LYG1	04/29/13	1049	1298014	9
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3	U	ND	0.725	1.00	mg/L		LXA1	05/08/13	1525	1300354	10
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	05/15/13	1500	1298090

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Certificate of Analysis

Report Date: May 22, 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: 2013-778

Client Sample ID: CAPA-13-29653
Sample ID: 324671012

Project: ESHL00210
Client ID: ARSL001

EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	05/06/13	1700	1299345
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	05/06/13	1700	1299311

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 120.1	
3	EPA 150.1	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 351.2	
9	EPA 160.1	
10	EPA 310.1	

Notes:

Quality Control Summary

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QC Summary

Report Date: May 22, 2013
Page 1 of 5

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

Contact: Keith Greene

Workorder: 324671

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis											
Batch	1298028										
QC1202866145	324498001	DUP									
Total Organic Carbon Average		3.45		3.30	mg/L	4.27	^	(+/-1.00)	TSM	04/29/13	17:29
QC1202866149	LCS										
Total Organic Carbon Average	10.0			9.84	mg/L			98.4 (85%-115%)		04/29/13	14:33
QC1202866144	MB										
Total Organic Carbon Average			U	ND	mg/L					04/29/13	14:24
QC1202866147	324498001	PS									
Total Organic Carbon Average	10.0	3.45		13.5	mg/L			100 (65%-120%)		04/29/13	17:49
Conductivity Analysis											
Batch	1298042										
QC1202866186	324498002	DUP									
Conductivity		142		145	umhos/cm	2.37		(0%-10%)	LXA1	04/29/13	16:54
QC1202866187	LCS										
Conductivity	1410			1450	umhos/cm			102 (95%-105%)		04/29/13	16:49
Electrode Analysis											
Batch	1298053										
QC1202866216	324591002	DUP									
pH		H	7.76	H	7.76	SU	0.00	(0%-10%)	LYG1	04/29/13	09:35
QC1202866217	LCS										
pH	7.00			7.03	SU			100 (99%-101%)		04/29/13	09:34
Ion Chromatography											
Batch	1297394										
QC1202864647	324498002	DUP									
Bromide		U	ND	U	ND	mg/L	N/A		MAR1	05/14/13	06:53
Chloride			13.8		13.4	mg/L	3.38	(0%-20%)		05/15/13	14:41
Fluoride			0.141		0.145	mg/L	3.07	^ (+/-0.100)		05/14/13	06:53
Sulfate			3.37		3.49	mg/L	3.49	(0%-20%)			
QC1202864649	LCS										
Bromide	1.25			1.32	mg/L			106 (90%-110%)		05/14/13	05:53

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1297394										
Chloride	5.00			4.93	mg/L		98.5	(90%-110%)	MAR1	05/14/13	05:53
Fluoride	2.50			2.53	mg/L		101	(90%-110%)			
Sulfate	10.0			10.3	mg/L		103	(90%-110%)			
QC1202864646	MB										
Bromide			U	ND	mg/L					05/14/13	05:23
Chloride			U	ND	mg/L						
Fluoride			U	ND	mg/L						
Sulfate			U	ND	mg/L						
QC1202864648	324498002	PS									
Bromide	1.25	U	ND	1.28	mg/L		103	(90%-110%)		05/14/13	07:23
Chloride	5.00		6.91	12.5	mg/L		111 *	(90%-110%)		05/15/13	15:11
Fluoride	2.50		0.141	2.72	mg/L		103	(90%-110%)		05/14/13	07:23
Sulfate	10.0		3.37	14.2	mg/L		108	(90%-110%)			
Nutrient Analysis											
Batch	1298091										
QC1202866340	324498002	DUP									
Nitrogen, Ammonia			0.0885	0.109	mg/L	20.8 ^		(+/-0.050)	KLP1	05/15/13	15:50
QC1202866344	LCS										
Nitrogen, Ammonia	1.00			0.942	mg/L		94.2	(90%-110%)		05/15/13	15:49
QC1202866339	MB										
Nitrogen, Ammonia			U	ND	mg/L					05/15/13	15:48
QC1202866342	324498002	MS									
Nitrogen, Ammonia	1.00		0.0885	1.03	mg/L		94.2	(90%-110%)		05/15/13	15:51
Batch	1298397										
QC1202867216	324498002	DUP									
Nitrogen, Nitrate/Nitrite			0.120	0.121	mg/L	0.830 ^		(+/-0.050)	KLP1	05/14/13	11:32
QC1202867220	LCS										
Nitrogen, Nitrate/Nitrite	1.00			0.986	mg/L		98.6	(90%-110%)		05/14/13	11:30

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Nutrient Analysis											
Batch	1298397										
QC1202867215 MB											
Nitrogen, Nitrate/Nitrite			U	ND	mg/L				KLP1	05/14/13	11:28
QC1202867218 324498002 PS											
Nitrogen, Nitrate/Nitrite	1.00	0.120		1.10	mg/L		98	(90%-110%)		05/14/13	11:33
Batch	1299313										
QC1202869467 324671009 DUP											
Phosphorus, Total as P		0.0632		0.0608	mg/L	3.87 ^		(+/-0.050)	KLP1	05/07/13	12:50
QC1202869466 LCS											
Phosphorus, Total as P	1.00			1.01	mg/L		101	(76%-120%)		05/07/13	12:48
QC1202869465 MB											
Phosphorus, Total as P			U	ND	mg/L					05/07/13	12:48
QC1202869468 324671009 MS											
Phosphorus, Total as P	2.00	0.0632		2.36	mg/L		115	(62%-139%)		05/07/13	12:51
Batch	1299346										
QC1202869533 324671006 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A		KLP1	05/07/13	16:32
QC1202869532 LCS											
Nitrogen, Total Kjeldahl	1.00			1.09	mg/L		109	(90%-110%)		05/07/13	16:30
QC1202869531 MB											
Nitrogen, Total Kjeldahl			U	ND	mg/L					05/07/13	16:30
QC1202869534 324671006 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND	0.956	mg/L		95.6	(90%-110%)		05/07/13	16:33
Solids Analysis											
Batch	1298014										
QC1202866184 324671011 DUP											
Total Dissolved Solids		120		119	mg/L	1.20		(0%-10%)	LYG1	04/29/13	10:49
QC1202866123 LCS											
Total Dissolved Solids	300			293	mg/L		97.6	(95%-105%)		04/29/13	10:49
QC1202866120 MB											
Total Dissolved Solids			J	5.71	mg/L					04/29/13	10:49
Titration Analysis											
Batch	1300354										

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration Analysis											
Batch	1300354										
QC1202872270	324671010	DUP									
Alkalinity, Total as CaCO3		58.9		57.9	mg/L	1.74		(0%-20%)	LXA1	05/08/13	15:13
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A					
QC1202872267	LCS										
Alkalinity, Total as CaCO3	50.0			51.3	mg/L		103	(90%-110%)		05/08/13	11:07
QC1202872271	324671010	MS									
Alkalinity, Total as CaCO3	50.0	58.9		111	mg/L		105	(80%-120%)		05/08/13	15:17

Notes:

- ** 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
- 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

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
N/A	RPD or %Recovery limits do not apply.										
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
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. 01-MAY-13	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: ELECTRODE	Test / Method: EPA 150.1	Matrix Type: Liquid	Client Code: ENRG, ESHL
Batch ID: 1298053	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 324591(2013-774),324603,324671(2013-778) Application Issues: Sample received out of holding			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Sample received out of holding: 324591 002,004 324603 003,010,017 324671 009,010,011,012 QC 1202866216DUP		1. Sample received out of holding	

Originator's Name:
Lisa Gregory 01-MAY-13

Data Validator/Group Leader:
Thomas Lewis 03-MAY-13

DATA EXCEPTION REPORT			
Mo.Day Yr. 17-MAY-13	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: IC	Test / Method: EPA 300.0	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1297394	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 324498(2013-760),324591(2013-774),324671(2013-778) Application Issues: Failed Recovery for MS/PS			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Failed Recovery for MS/PS: QC 1202864648PS		1. The MS/PS failed required acceptance limits for Chloride due to matrix interference. Of the remaining anions in the MS/PS, several met required acceptance limits. This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported.	

Originator's Name:
Mary Sherwood 17-MAY-13

Data Validator/Group Leader:
Thomas Lewis 22-MAY-13

Radiological Analysis

**Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-778
Work Order 324671**

Method/Analysis Information

Product: Alphaspec Am241 Liquid
Analytical Method: DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number: 1298061

Sample ID	Client ID
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202866240	Method Blank (MB)
1202866241	325284005(CAMO-13-30558) Sample Duplicate (DUP)
1202866242	Laboratory Control Sample (LCS)

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

Calibration Information:

Calibration Information

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

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1202866240 (MB) and 1202866242 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order

325284.

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. The following DER was generated for this SDG: DER 1186476 was generated due to RDL less than MDA. 1. Sample 324498001 did not meet the Am-241 detection limit due to a reduced aliquot. 2. Samples 324671006, 324671007, and 325284005 did not meet the Am-241 detection limit. 1. The aliquot was reduced due to the matrix of the sample. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Alphaspec U, Liquid
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1298064

Sample ID	Client ID
324671006	CAPA-13-29667

324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202866248	Method Blank (MB)
1202866249	325284005(CAMO-13-30558) Sample Duplicate (DUP)
1202866250	Laboratory Control Sample (LCS)

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

Calibration Information:

Calibration Information

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

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1202866248 (MB) and 1202866250 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The U-233/234 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

The batch was recounted due to low tracer counts. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec Pu, Liquid
Analytical Method: DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number: 1302191

Sample ID	Client ID
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202877006	Method Blank (MB)
1202877007	325284005(CAMO-13-30558) Sample Duplicate (DUP)
1202877008	Laboratory Control Sample (LCS)

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

Calibration Information:**Calibration Information**

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

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

Aliquots for samples 1202877006 (MB) and 1202877008 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

QC Information

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

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

Samples were re-prepped due to high relative percent difference/relative error ratio. The re-analysis is being reported. Samples 1202877007 (CAMO-13-30558) and 324671012 (CAPA-13-29653) were recounted due to a peak shift. The recounts are reported. Sample 1202877006 (MB) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1187810 was generated due to RDL less than MDA. 1. Samples 324498001 and 1202877007 did not meet the Pu-239/240 detection limit due to a reduced aliquot. 2. Samples 324671006, 324671008, and 1202877006 did not meet the Pu-239/240 detection limit. Sample 325284005 did not meet the Pu-238 and Pu-239/240 detection limits. 1. The aliquots were reduced due to the matrix of the samples. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: **GammaSpec**

Analytical Method: EPA 901.1

Analytical Batch Number: 1298376

Sample ID	Client ID
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202867154	Method Blank (MB)
1202867155	324671006(CAPA-13-29667) Sample Duplicate (DUP)
1202867156	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 May 2012, June 2012, July 2012 and August 2012.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 324671006 (CAPA-13-29667). The QC was from ARSL work order 324671.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:**Holding Time**

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:**Data Exception (DER) Documentation**

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

Additional Comments

Additional comments were not required for this sample set.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: GFPC, Sr90, liquid
Analytical Method: EPA 905.0 Modified
Analytical Batch Number: 1298225

Sample ID	Client ID
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202866766	Method Blank (MB)
1202866767	324671006(CAPA-13-29667) Sample Duplicate (DUP)
1202866768	324671006(CAPA-13-29667) Matrix Spike (MS)
1202866769	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 1202866766 (MB) and 1202866769 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 324671006 (CAPA-13-29667). The QC was from ARSL work order 324671.

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 prep or reanalysis.

Chemical Recoveries

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

Miscellaneous Information:

Data Exception (DER) Documentation

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

Additional Comments

The matrix spike, 1202866768 (CAPA-13-29667), 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: 1298712

Sample ID	Client ID
324671006	CAPA-13-29667
324671007	CAPA-13-29651
324671008	CAPA-13-29668
324671012	CAPA-13-29653
1202868030	Method Blank (MB)
1202868031	324671006(CAPA-13-29667) Sample Duplicate (DUP)
1202868032	324671006(CAPA-13-29667) Matrix Spike (MS)
1202868033	324671006(CAPA-13-29667) Matrix Spike Duplicate (MSD)
1202868034	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 1202868030 (MB) and 1202868034 (LCS) were changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 324671006 (CAPA-13-29667). The QC was from ARSL work order 324671.

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 1202868034 (LCS) was recounted due to high recovery. The recount is reported.

Chemical Recoveries

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

Gross Alpha/Beta Preparation Information

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

Miscellaneous Information:**Data Exception (DER) Documentation**

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

Additional Comments

The matrix spike and matrix spike duplicate, 1202868032 (CAPA-13-29667) and 1202868033 (CAPA-13-29667), 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.

Method/Analysis Information

Product:	WSP-H-3
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1298682

Sample ID	Client ID
324671012	CAPA-13-29653

1202867932	Method Blank (MB)
1202867933	324671012(CAPA-13-29653) Sample Duplicate (DUP)
1202867934	324671012(CAPA-13-29653) Matrix Spike (MS)
1202867935	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-002 REV# 21.

Calibration Information:

Calibration Information

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

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 324671012 (CAPA-13-29653). The QC was from ARSL work order 324671.

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time

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

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation

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

Additional Comments

Additional comments were not required for this sample set.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

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

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Qualifier Definition Report for

ARSL001 ARS International (63641-10)

Client SDG: 2013-778 GEL Work Order: 324671

The Qualifiers in this report are defined as follows:

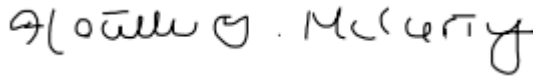
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

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

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

Signature:



Name: Heather McCarty

Date: 21 MAY 2013

Title: Analyst II

DATA EXCEPTION REPORT			
Mo.Day Yr. 15-MAY-13	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: ALPHA SPECTROMETER	Test / Method: DOE EML HASL-300, Am-05-RC Modified	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1298061	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 324498(2013-760),324671(2013-778),325284(2013-809) Application Issues: RDL less than MDA			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Sample 324498001 did not meet the Am-241 detection limit due to a reduced aliquot. 2. Samples 324671006, 324671007, and 325284005 did not meet the Am-241 detection limit.		1. The aliquot was reduced due to the matrix of the sample. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.	

Originator's Name:

Melanie Aycock 15-MAY-13

Data Validator/Group Leader:

Jessica Davis 16-MAY-13

DATA EXCEPTION REPORT

Mo.Day Yr. 21-MAY-13	Division: Radiochemistry	Quality Criteria: Specifications	Type: Process
Instrument Type: ALPHA SPECTROMETER	Test / Method: DOE EML HASL-300, Pu-11-RC Modified	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1302191	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 324498(2013-760),324671(2013-778),325284(2013-809) Application Issues: RDL less than MDA			
Specification and Requirements		DER Disposition:	
Exception Description:			
1. Samples 324498001 and 1202877007 did not meet the Pu-239/240 detection limit due to a reduced aliquot. 2. Samples 324671006, 324671008, and 1202877006 did not meet the Pu-239/240 detection limit. Sample 325284005 did not meet the Pu-238 and Pu-239/240 detection limits.		1. The aliquots were reduced due to the matrix of the samples. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.	

Originator's Name:

Jessica Downey 21-MAY-13

Data Validator/Group Leader:

Jessica Davis 21-MAY-13

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: May 21, 2013

Client Sample ID: CAPA-13-29667
Sample ID: 324671006
Matrix: W
Collect Date: 25-APR-13
Receive Date: 27-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													
<i>Alphaspec Am241 Liquid "As Received"</i>													
Americium-241	U	0.00295	+/-0.0066	0.0572	+/-0.0066	0.050	pCi/L		MXS2	05/09/13	1209	1298061	1
<i>Alphaspec Pu, Liquid "As Received"</i>													
Plutonium-238	U	0.00351	+/-0.00784	0.0521	+/-0.00784	0.050	pCi/L		NXP2	05/19/13	1359	1302191	2
Plutonium-239/240	U	0.00	+/-0.00701	0.0628	+/-0.00701	0.050	pCi/L						
<i>Alphaspec U, Liquid "As Received"</i>													
Uranium-234		0.339	+/-0.0277	0.0505	+/-0.035	1.00	pCi/L		MXS2	05/14/13	1604	1298064	3
Uranium-235/236	U	0.00816	+/-0.00816	0.0234	+/-0.00818	1.00	pCi/L						
Uranium-238		0.134	+/-0.0177	0.0305	+/-0.0197	0.500	pCi/L						
Rad Gamma Spec Analysis													
<i>Gammasespec "As Received"</i>													
Cesium-137	U	1.69	+/-1.40	5.06	+/-1.46	8.00	pCi/L		MXR1	05/17/13	0955	1298376	4
Cobalt-60	U	0.442	+/-1.02	4.16	+/-1.02	8.00	pCi/L						
Neptunium-237	U	2.23	+/-2.22	8.41	+/-2.28	10.0	pCi/L						
Potassium-40	U	4.72	+/-15.5	52.0	+/-15.5	10.0	pCi/L						
Sodium-22	U	-1.78	+/-1.26	3.96	+/-1.32	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, liquid "As Received"</i>													
Strontium-90	U	0.405	+/-0.158	0.486	+/-0.161	0.500	pCi/L		BXF1	05/08/13	2110	1298225	5
<i>WSP-GrossA/B "As Received"</i>													
Beta	U	0.854	+/-0.876	2.97	+/-0.880	3.00	pCi/L		BXF1	05/10/13	1635	1298712	6
Alpha	U	1.58	+/-0.792	2.30	+/-0.803	3.00	pCi/L		BXF1	05/13/13	1532	1298712	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"	1298061	75.1	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1302191	63.7	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1298064	74.9	(50%-105%)

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: May 21, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29667

Sample ID: 324671006

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"					1298225	63.2	(50%-105%)				

Notes:

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

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: May 21, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29651
Sample ID: 324671007
Matrix: W
Collect Date: 25-APR-13
Receive Date: 27-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													
<i>Alphaspec Am241 Liquid "As Received"</i>													
Americium-241	U	0.00295	+/-0.00511	0.0571	+/-0.00511	0.050	pCi/L		MXS2	05/09/13	1209	1298061	1
<i>Alphaspec Pu, Liquid "As Received"</i>													
Plutonium-238	U	0.00	+/-0.00378	0.0397	+/-0.00378	0.050	pCi/L		NXP2	05/19/13	1359	1302191	2
Plutonium-239/240	U	0.00	+/-0.00534	0.0479	+/-0.00535	0.050	pCi/L						
<i>Alphaspec U, Liquid "As Received"</i>													
Uranium-234		0.337	+/-0.0348	0.0751	+/-0.0415	1.00	pCi/L		MXS2	05/14/13	1604	1298064	3
Uranium-235/236	U	0.00405	+/-0.00701	0.0349	+/-0.00702	1.00	pCi/L						
Uranium-238		0.190	+/-0.0258	0.0454	+/-0.0288	0.500	pCi/L						
Rad Gamma Spec Analysis													
<i>Gammasespec "As Received"</i>													
Cesium-137	U	0.835	+/-1.63	6.03	+/-1.65	8.00	pCi/L		MXR1	05/17/13	1002	1298376	4
Cobalt-60	U	-1.02	+/-1.32	4.91	+/-1.34	8.00	pCi/L						
Neptunium-237	U	1.52	+/-2.99	11.0	+/-3.02	10.0	pCi/L						
Potassium-40	U	33.8	+/-15.8	71.5	+/-17.7	10.0	pCi/L						
Sodium-22	U	0.427	+/-1.32	5.29	+/-1.33	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, liquid "As Received"</i>													
Strontium-90	U	-0.327	+/-0.118	0.496	+/-0.118	0.500	pCi/L		BXF1	05/08/13	2111	1298225	5
<i>WSP-GrossA/B "As Received"</i>													
Beta	U	2.33	+/-0.910	2.84	+/-0.932	3.00	pCi/L		BXF1	05/10/13	1655	1298712	6
Alpha		3.05	+/-1.00	1.88	+/-1.04	3.00	pCi/L		BXF1	05/13/13	1532	1298712	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"	1298061	75.0	(50%-105%)
Plutonium-242 Tracer		Alphaspec Pu, Liquid "As Received"	1302191	84.1	(50%-105%)
Uranium-232 Tracer		Alphaspec U, Liquid "As Received"	1298064	56.3	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1298225	70.2	(50%-105%)

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

Report Date: May 21, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29651
Sample ID: 324671007

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	

Notes:

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

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Los Alamos, New Mexico 87545

Report Date: May 21, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29668
Sample ID: 324671008
Matrix: W
Collect Date: 25-APR-13
Receive Date: 27-APR-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

Alphaspec Am241 Liquid "As Received"

Americium-241	U	0.00	+/-0.00375	0.0513	+/-0.00375	0.050	pCi/L	MXS2	05/09/13	1209	1298061	1
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Alphaspec Pu, Liquid "As Received"

Plutonium-238	U	-0.00333	+/-0.00882	0.0495	+/-0.00882	0.050	pCi/L	NXP2	05/19/13	1400	1302191	2
Plutonium-239/240	U	0.00333	+/-0.00577	0.0597	+/-0.00577	0.050	pCi/L					

Alphaspec U, Liquid "As Received"

Uranium-234		0.347	+/-0.0316	0.0564	+/-0.0387	1.00	pCi/L	MXS2	05/14/13	1604	1298064	3
Uranium-235/236	U	0.0182	+/-0.0105	0.0262	+/-0.0106	1.00	pCi/L					
Uranium-238		0.133	+/-0.0203	0.0341	+/-0.022	0.500	pCi/L					

Rad Gamma Spec Analysis

Gammaspac "As Received"

Cesium-137	U	0.311	+/-1.50	5.46	+/-1.50	8.00	pCi/L	MXR1	05/17/13	1002	1298376	4
Cobalt-60	U	-1.2	+/-1.45	5.07	+/-1.48	8.00	pCi/L					
Neptunium-237	U	4.99	+/-2.69	10.5	+/-2.93	10.0	pCi/L					
Potassium-40	U	9.65	+/-19.4	55.3	+/-19.4	10.0	pCi/L					
Sodium-22	U	-1.23	+/-1.51	5.29	+/-1.54	10.0	pCi/L					

Rad Gas Flow Proportional Counting

GFPC, Sr90, liquid "As Received"

Strontium-90	U	-0.000834	+/-0.131	0.489	+/-0.131	0.500	pCi/L	BXF1	05/08/13	2110	1298225	5
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WSP-GrossA/B "As Received"

Beta	U	2.86	+/-0.957	2.99	+/-0.987	3.00	pCi/L	BXF1	05/10/13	1635	1298712	6
Alpha		2.83	+/-0.983	2.19	+/-1.01	3.00	pCi/L	BXF1	05/13/13	1531	1298712	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"	1298061	82.5	(50%-105%)
Plutonium-242 Tracer		Alphaspec Pu, Liquid "As Received"	1302191	66.2	(50%-105%)
Uranium-232 Tracer		Alphaspec U, Liquid "As Received"	1298064	72.4	(50%-105%)
Strontium Carrier		GFPC, Sr90, liquid "As Received"	1298225	69.0	(50%-105%)

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Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545

Report Date: May 21, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29668

Sample ID: 324671008

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	

Notes:

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

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Los Alamos, New Mexico 87545

Report Date: May 21, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29653
Sample ID: 324671012
Matrix: W
Collect Date: 25-APR-13
Receive Date: 27-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													
<i>Alphaspec Am241 Liquid "As Received"</i>													
Americium-241	U	0.00278	+/-0.00482	0.0539	+/-0.00482	0.050	pCi/L		MXS2	05/09/13	1209	1298061	1
<i>Alphaspec Pu, Liquid "As Received"</i>													
Plutonium-238	U	0.0385	+/-0.011	0.0409	+/-0.0111	0.050	pCi/L		NXP2	05/20/13	1512	1302191	2
Plutonium-239/240	U	0.00275	+/-0.00614	0.0492	+/-0.00614	0.050	pCi/L						
<i>Alphaspec U, Liquid "As Received"</i>													
Uranium-234	U	0.0178	+/-0.0089	0.051	+/-0.00897	1.00	pCi/L		MXS2	05/14/13	1604	1298064	3
Uranium-235/236	U	-0.00825	+/-0.00727	0.0237	+/-0.00728	1.00	pCi/L						
Uranium-238	U	0.00222	+/-0.00667	0.0308	+/-0.00667	0.500	pCi/L						
Rad Gamma Spec Analysis													
<i>Gammasespec "As Received"</i>													
Cesium-137	U	0.0886	+/-1.69	5.83	+/-1.69	8.00	pCi/L		MXR1	05/17/13	1002	1298376	4
Cobalt-60	U	2.43	+/-2.02	8.14	+/-2.10	8.00	pCi/L						
Neptunium-237	U	-0.585	+/-3.64	12.5	+/-3.65	10.0	pCi/L						
Potassium-40	U	-7.73	+/-19.6	73.0	+/-19.7	10.0	pCi/L						
Sodium-22	U	-0.569	+/-1.60	5.87	+/-1.60	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, liquid "As Received"</i>													
Strontium-90	U	0.334	+/-0.153	0.490	+/-0.155	0.500	pCi/L		BXF1	05/08/13	2110	1298225	5
<i>WSP-GrossA/B "As Received"</i>													
Beta		3.10	+/-0.963	2.96	+/-0.998	3.00	pCi/L		BXF1	05/10/13	1636	1298712	6
Alpha	U	0.750	+/-0.709	2.58	+/-0.712	3.00	pCi/L		BXF1	05/13/13	1534	1298712	7
Rad Liquid Scintillation Analysis													
<i>WSP-H-3 "As Received"</i>													
Tritium	U	-38	+/-35.1	132	+/-35.1	200	pCi/L		BYS1	05/06/13	2058	1298682	8

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
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1298061	82.3	(50%-105%)

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
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Los Alamos, New Mexico 87545

Report Date: May 21, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAPA-13-29653
Sample ID: 324671012

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				
Plutonium-242 Tracer		Alphaspec Pu, Liquid "As Received"					1302191	78.3	(50%-105%)				
Uranium-232 Tracer		Alphaspec U, Liquid "As Received"					1298064	85.7	(50%-105%)				
Strontium Carrier		GFPC, Sr90, liquid "As Received"					1298225	73.7	(50%-105%)				

Notes:

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

Quality Control Data

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QC Summary

Report Date: May 21, 2013

Page 1 of 7

Client : Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico
Contact: Keith Greene
Workorder: 324671

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1298061										
QC1202866241	325284005 DUP										
Americium-241	U	0.00296	U	-0.00269	pCi/L	0.250		(0-1)	MXS2	05/09/1312:09	
	Uncert:	+/-0.00663		+/-0.00466							
	TPU:	+/-0.00663		+/-0.00466							
**Americium-243 Tracer	2.62	2.09		2.18	pCi/L		83.4	(50%-105%)			
	Uncert:	+/-0.0876		+/-0.0834							
	TPU:	+/-0.144		+/-0.139							
QC1202866242	LCS										
Americium-241	1.41			1.32	pCi/L		93.2	(80%-120%)	MXS2	05/09/1312:09	
	Uncert:			+/-0.0558							
	TPU:			+/-0.0802							
**Americium-243 Tracer	2.09			1.52	pCi/L		72.8	(50%-105%)			
	Uncert:			+/-0.0698							
	TPU:			+/-0.115							
QC1202866240	MB										
Americium-241			U	0.0164	pCi/L				MXS2	05/09/1312:09	
	Uncert:			+/-0.0065							
	TPU:			+/-0.00653							
**Americium-243 Tracer	2.09			1.81	pCi/L		86.3	(50%-105%)			
	Uncert:			+/-0.0654							
	TPU:			+/-0.110							
Batch	1298064										
QC1202866249	325284005 DUP										
Uranium-234	U	0.00306	U	0.00212	pCi/L	0.0318		(0-1)	MXS2	05/14/1316:04	
	Uncert:	+/-0.00918		+/-0.00561							
	TPU:	+/-0.00918		+/-0.00561							
Uranium-235/236	U	0.00756	U	0.00	pCi/L	0.335		(0-1)			
	Uncert:	+/-0.00756		+/-0.0037							
	TPU:	+/-0.00758		+/-0.00371							
Uranium-238	U	-0.00306	U	-0.00636	pCi/L	0.132		(0-1)			
	Uncert:	+/-0.00684		+/-0.00561							
	TPU:	+/-0.00684		+/-0.00561							
**Uranium-232 Tracer	2.70	1.95		2.13	pCi/L		79.1	(50%-105%)			
	Uncert:	+/-0.0913		+/-0.0768							
	TPU:	+/-0.200		+/-0.187							
QC1202866250	LCS										
Uranium-234				2.70	pCi/L				MXS2	05/14/1316:04	
	Uncert:			+/-0.0824							
	TPU:			+/-0.196							
Uranium-235/236				0.145	pCi/L						
	Uncert:			+/-0.022							
	TPU:			+/-0.024							
Uranium-238	2.70			2.80	pCi/L		104	(80%-120%)			

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1298064										
		Uncert:		+/-0.0838							
		TPU:		+/-0.203							
**Uranium-232 Tracer	2.16			1.15	pCi/L		53.5	(50%-105%)			
		Uncert:		+/-0.0742							
		TPU:		+/-0.161							
QC1202866248 MB											
Uranium-234			U	0.00996	pCi/L				MXS2	05/14/13	16:04
		Uncert:		+/-0.00597							
		TPU:		+/-0.00601							
Uranium-235/236			U	0.00492	pCi/L						
		Uncert:		+/-0.00492							
		TPU:		+/-0.00493							
Uranium-238			U	-0.00199	pCi/L						
		Uncert:		+/-0.00345							
		TPU:		+/-0.00345							
**Uranium-232 Tracer	2.16			1.46	pCi/L		67.7	(50%-105%)			
		Uncert:		+/-0.0658							
		TPU:		+/-0.153							
Batch	1302191										
QC1202877007 325284005 DUP											
Plutonium-238		U	0.00977	U	0.00	pCi/L	0.336	(0-1)	NXP2	05/20/13	15:12
		Uncert:	+/-0.00977	+/-0.00473							
		TPU:	+/-0.00978	+/-0.00474							
Plutonium-239/240		U	-0.00976	U	0.00335	pCi/L	0.380	(0-1)			
		Uncert:	+/-0.00976	+/-0.00748							
		TPU:	+/-0.00977	+/-0.00748							
**Plutonium-242 Tracer	3.25		1.98	2.91	pCi/L		89.5	(50%-105%)			
		Uncert:	+/-0.127	+/-0.105							
		TPU:	+/-0.201	+/-0.174							
QC1202877008 LCS											
Plutonium-238			U	0.00973	pCi/L			(80%-120%)	NXP2	05/19/13	14:00
		Uncert:		+/-0.00515							
		TPU:		+/-0.00517							
Plutonium-239/240	1.97			1.70	pCi/L		86.2	(80%-120%)			
		Uncert:		+/-0.0575							
		TPU:		+/-0.0922							
**Plutonium-242 Tracer	1.95			1.83	pCi/L		94	(50%-105%)			
		Uncert:		+/-0.062							
		TPU:		+/-0.103							
QC1202877006 MB											
Plutonium-238			U	-0.0032	pCi/L				NXP2	05/20/13	15:12
		Uncert:		+/-0.00554							
		TPU:		+/-0.00554							
Plutonium-239/240			U	-0.0032	pCi/L						
		Uncert:		+/-0.00554							
		TPU:		+/-0.00554							
**Plutonium-242 Tracer	1.95			1.09	pCi/L		55.8	(50%-105%)			
		Uncert:		+/-0.0796							
				+/-0.125							

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1302191										
TPU:											
Rad Gamma Spec											
Batch	1298376										
QC1202867155	324671006	DUP									
Cesium-137	U	1.69	U	0.679	pCi/L	0.167		(0-1)	MXR1	05/17/13	12:05
	Uncert:	+/-1.40		+/-1.57							
	TPU:	+/-1.46		+/-1.57							
Cobalt-60	U	0.442	U	-1.14	pCi/L	0.271		(0-1)			
	Uncert:	+/-1.02		+/-1.87							
	TPU:	+/-1.02		+/-1.89							
Neptunium-237	U	2.23	U	-0.798	pCi/L	0.256		(0-1)			
	Uncert:	+/-2.22		+/-3.63							
	TPU:	+/-2.28		+/-3.63							
Potassium-40	U	4.72	U	-8.23	pCi/L	0.189		(0-1)			
	Uncert:	+/-15.5		+/-18.7							
	TPU:	+/-15.5		+/-18.8							
Sodium-22	U	-1.78	U	-0.582	pCi/L	0.188		(0-1)			
	Uncert:	+/-1.26		+/-1.85							
	TPU:	+/-1.32		+/-1.86							
QC1202867156	LCS										
Americium-241	2780			3040	pCi/L		109	(80%-120%)	MXR1	05/17/13	12:05
	Uncert:			+/-148							
	TPU:			+/-284							
Cesium-137	6020			5870	pCi/L		97.5	(80%-120%)			
	Uncert:			+/-58.5							
	TPU:			+/-283							
Cobalt-60	5300			5270	pCi/L		99.4	(80%-120%)			
	Uncert:			+/-63.7							
	TPU:			+/-233							
Neptunium-237			U	11.1	pCi/L						
	Uncert:			+/-24.4							
	TPU:			+/-24.6							
Potassium-40			U	-88.6	pCi/L						
	Uncert:			+/-47.2							
	TPU:			+/-51.5							
Sodium-22			U	0.109	pCi/L						
	Uncert:			+/-7.92							
	TPU:			+/-7.92							
QC1202867154	MB										
Cesium-137			U	1.37	pCi/L				MXR1	05/17/13	10:03
	Uncert:			+/-2.01							
	TPU:			+/-2.01							
Cobalt-60			U	1.30	pCi/L						
	Uncert:			+/-1.43							
	TPU:			+/-1.46							
Neptunium-237			U	-1.56	pCi/L						
	Uncert:			+/-2.66							
	TPU:			+/-2.68							

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QC Summary

Workorder: 324671

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Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	1298376										
Potassium-40			U	-0.847	pCi/L						
				+/-13.6							
				+/-13.6							
Sodium-22			U	0.428	pCi/L						
				+/-1.02							
				+/-1.03							
Rad Gas Flow											
Batch	1298225										
QC1202866767	324671006	DUP									
Strontium-90		U	0.405	U	0.429	pCi/L	0.0365	(0-1)	BXF1	05/08/1321:10	
				+/-0.158							
				+/-0.161							
**Strontium Carrier	8.55	5.40		5.90	mg		69	(50%-105%)			
QC1202866769	LCS										
Strontium-90	24.3			25.5	pCi/L		105	(80%-120%)	BXF1	05/08/1321:10	
				+/-0.743							
				+/-2.30							
**Strontium Carrier	8.55			5.70	mg		66.7	(50%-105%)			
QC1202866766	MB										
Strontium-90			U	0.0873	pCi/L				BXF1	05/08/1321:10	
				+/-0.0712							
				+/-0.0715							
**Strontium Carrier	8.55			5.90	mg		69	(50%-105%)			
QC1202866768	324671006	MS									
Strontium-90	81.1	U	0.405	88.6	pCi/L		109	(75%-125%)	BXF1	05/08/1321:10	
				+/-2.52							
				+/-7.54							
**Strontium Carrier	8.55	5.40		5.50	mg		64.3	(50%-105%)			
Batch	1298712										
QC1202868031	324671006	DUP									
Alpha		U	1.58	U	1.11	pCi/L	0.155	(0-1)	BXF1	05/13/1315:34	
				+/-0.792							
				+/-0.803							
Beta		U	0.854	U	1.42	pCi/L	0.164	(0-1)		05/10/1316:36	
				+/-0.876							
				+/-0.880							
QC1202868034	LCS										
Alpha	12.3			13.3	pCi/L		108	(80%-120%)	BXF1	05/13/1317:16	
				+/-0.637							
				+/-1.30							
Beta	48.6			54.0	pCi/L		111	(80%-120%)		05/10/1316:35	
				+/-0.939							
				+/-4.59							
QC1202868030	MB										
Alpha			U	0.0577	pCi/L				BXF1	05/13/1315:32	
				+/-0.114							
				+/-0.114							
Beta			U	-0.29	pCi/L					05/10/1316:36	

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QC Summary

Workorder: 324671

Page 5 of 7

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	1298712										
				Uncert:			+/-0.122				
				TPU:			+/-0.122				
QC1202868032	324671006	MS									
Alpha	247	U	1.58	279	pCi/L		113	(75%-125%)	BXF1	05/13/1315:42	
			Uncert:	+/-0.792			+/-14.0				
			TPU:	+/-0.803			+/-28.6				
Beta	972	U	0.854	1050	pCi/L		108	(75%-125%)		05/10/1316:35	
			Uncert:	+/-0.876			+/-18.8				
			TPU:	+/-0.880			+/-90.0				
QC1202868033	324671006	MSD									
Alpha	247	U	1.58	285	pCi/L	0.0511	115	(0-1)	BXF1	05/13/1315:42	
			Uncert:	+/-0.792			+/-14.9				
			TPU:	+/-0.803			+/-28.7				
Beta	972	U	0.854	1050	pCi/L	0.00197	107	(0-1)		05/10/1316:35	
			Uncert:	+/-0.876			+/-18.8				
			TPU:	+/-0.880			+/-89.2				
Rad Liquid Scintillation											
Batch	1298682										
QC1202867933	324671012	DUP									
Tritium		U	-38	U	-20.7	pCi/L	0.122	(0-1)	BYS1	05/06/1322:43	
			Uncert:		+/-35.1		+/-35.9				
			TPU:		+/-35.1		+/-35.9				
QC1202867935	LCS										
Tritium	1960				1570	pCi/L		80.3	(80%-120%)	BYS1	05/06/1323:53
			Uncert:		+/-144						
			TPU:		+/-211						
QC1202867932	MB										
Tritium				U	-70.8	pCi/L			BYS1	05/06/1321:51	
			Uncert:		+/-33.4						
			TPU:		+/-33.4						
QC1202867934	324671012	MS									
Tritium	1960	U	-38		1750	pCi/L		89.2	(75%-125%)	BYS1	05/06/1323:36
			Uncert:		+/-35.1						
			TPU:		+/-35.1						

Notes:

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

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- ** 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

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QC Summary

Workorder: 324671

Page 6 of 7

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

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QC Summary

Workorder: 324671

Page 7 of 7

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

** Indicates analyte is a surrogate/tracer compound.

^ 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.

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.



June 04, 2013

www.gel.com

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: 326849
SDG: 2013-778-1

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 27, 2013, and analyzed for General Chemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-778
Enclosures



ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 326849
SDG: 2013-778-1

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Case Narrative

**Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 326849
SDG # : 2013-778-1**

June 04, 2013

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on April 27, 2013 for analysis. The sample was delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperature was checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following sample:

<u>Laboratory ID</u>	<u>Client ID</u>
326849001	CAPA-13-29679

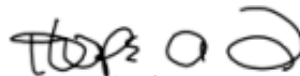
Case Narrative

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: General Chemistry.

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



Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 04 June 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

324071

COC/Lab Request #:
2013-778

Page 1 of 1

[illegible]

SAMPLE RECEIPT & REVIEW FORM

Client: <u>LANL</u>		SDG/AR/COC/Work Order: <u>2013-778</u>
Received By: <u>MIC</u>		Date Received: <u>4-27-13</u>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags <u>Blue ice</u> Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>4C 5C</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>41501132</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <u>See Attached</u>
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air <u>5612 9852 9615</u> FedEx Ground UPS Field Services Courier Other <u>4C</u> <u>9637 4C</u> <u>9590 18C NO ICE</u> <u>9604 5C</u> <u>9626 4C</u>

Comments (Use Continuation Form if needed):

Client: LANL Received By: M. Kirskey Date Received: 042713 SDG/AR/COC/Work Order: 2013-778

ALL containers for Gross AIB were preserved prior to analysis

RN 2013-778

* CAPA-13-29667 lab received 2 container each for SDA and Hexp, chain indicates 3 each.

* CAPA-13-29651 lab received 2 containers each for SDA and Hexp, chain indicates 3 each

* CAPA-13-29650 lab received one container for SDA, chain indicates 3

* CAPA-13-29653 lab received 1 container each for SDA and Hexp, chain indicates 3. received one container for Hexmod, chain indicates two

* CAPA-13-29660 and 29661 lab received one container each for B260, chain indicates two

RN 2013-777

* CAPA-13-29548 and 29549 ~~each~~^{lab} lab received one container each for B260, chain indicates two

Subject: FW: New Request: reanalysis, R-17 S2 ISSUE=378 PROJ=220
From: "Greene, Keith R" <kgreene@lanl.gov>
Date: 6/3/2013 12:46 PM
To: Valerie Davis <vsd@gel.com>
CC: "Patel, Nita" <npatel@lanl.gov>

From: ENV Data Systems [mailto:env_data_systems@lanl.gov]
Sent: Monday, June 03, 2013 10:41 AM
To: Greene, Keith R
Subject: New Request: reanalysis, R-17 S2 ISSUE=378 PROJ=220

When replying, type your text above this line.

Notification of Request Registration

Workspace: ENV Data Systems
Request: reanalysis, R-17 S2
Request Number: 378

Priority: 1 **Status:** Request
Date: 06/03/2013 **Time:** 10:41:48
Created By: 115164

[Click here to view Request in Browser](#)

Description:

Entered on 06/03/2013 at 10:41:48 MDT (GMT-0600) by 115164:
Please reanalyze CAPA-13-29679 Nitrate-Nitrite as Nitrogen (R-17 S2)

Also, please provide focused validation of existing result.

Need results by 6/15.

Current Assignees:

CC(s): (permanent) mding@lanl.gov

Request Information:

Request Type:: Focused Validation **Customer Priority::** Stop Work
System:: EIM/Intellus
Justification::
Need reanalysis and validation of nitrate result

Contact Information:

Z Number:	115164	Full Name:	David B. Rogers
E-mail:	slug@lanl.gov	Phone Number:	+1 505 667 0313
Organization:	ET-EI: ENVIRONMENTAL INVES TIGATIONS		

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

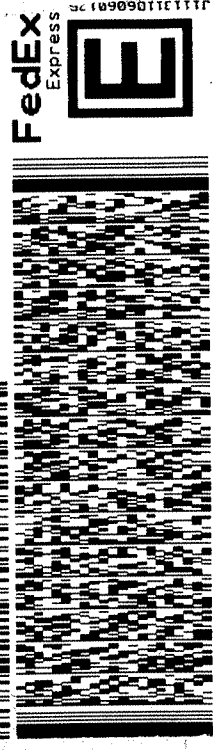
SHIP DATE: 26APR13
ACTWGT: 47.0 LB MAN
CRD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-8171
REF: WE991158W100



SATURDAY 12:00P

PRIORITY OVERNIGHT

3 of 3

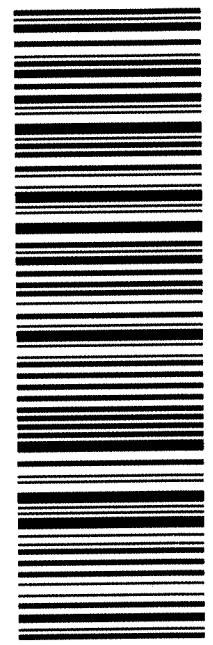
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Mstr# 5462 9832 9590

X0 CHSA

29407

SC-US CHS



Form # 156148-434 RIT2 08/10

500CT/64BE/18BC

4C

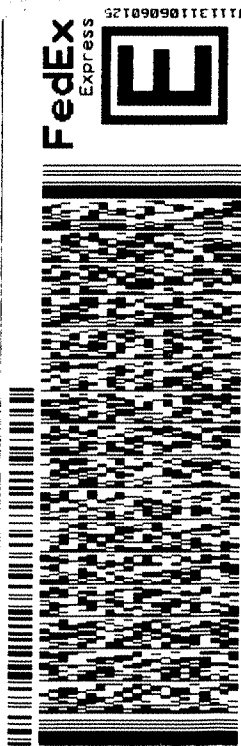
IN ID: SAFA (505) 665-9966
TH GREENE
LOS ALAMOS NATL LAB
TR00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 42.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWF0



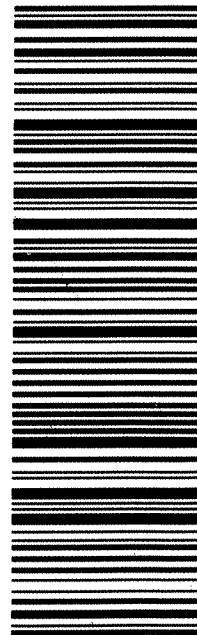
SATURDAY 12:00P
PRIORITY OVERNIGHT

MPS# 5462 9832 9637

Mstr# 5462 9832 9626

X0 CHSA

29407
SC-US CHS



Form 156149-434 RIT2 08/10 *

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TR00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 52.0 LB MAN
CAD: 0014476/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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



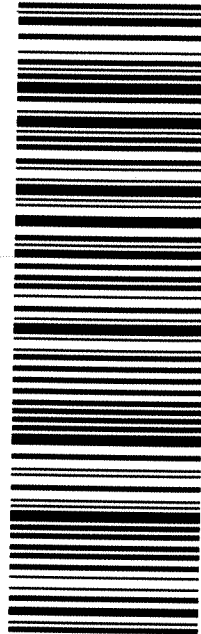
SATURDAY 12:00P
PRIORITY OVERNIGHT

1 of 3
TRK# 5462 9832 9590

0201
MASTER ##

X0 CHSA

29407
SC-US CHS



Form 156149-434 RIT2 08/10 *

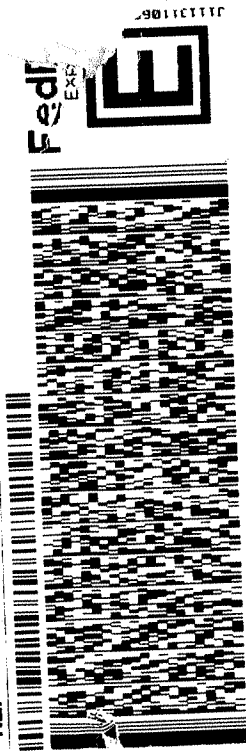
ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

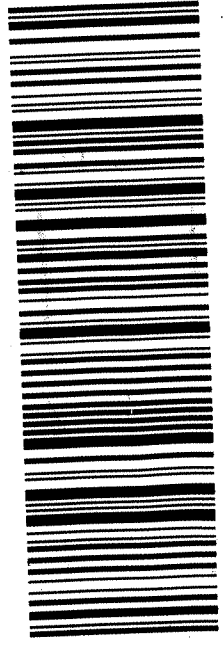


SATURDAY 12:00P
PRIORITY OVERNIGHT

MPS# 5462 9832 9604
Mstr# 5462 9832 9590

X0 CHSA

29407
SC-US CHS



Par # 156148-434 RT2 08/10 *

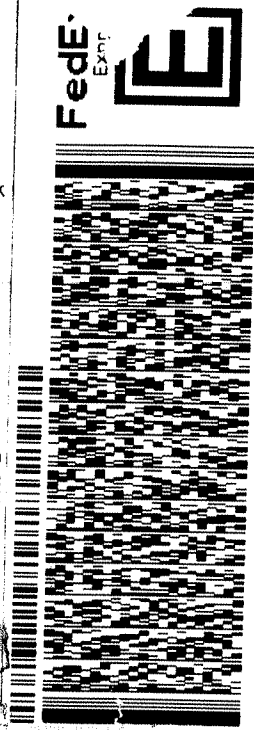
ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 26APR13
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGNF0

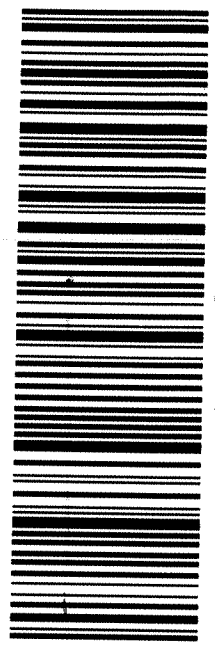


SATURDAY 12:00P
PRIORITY OVERNIGHT

1 of 2
TRK# 5462 9832 9626
0201
M# MASTER M#

X0 CHSA

29407
SC-US CHS



Par # 156148-434 RT2 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.

General Chem Analysis

Case Narrative

**General Chemistry Narrative
ARS International (ARSL)
SDG 2013-778-1**

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction		
Analytical Batch:	1305733	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
326849001	CAPA-13-29679
1202886288	Method Blank (MB)
1202886289	326849001(CAPA-13-29679) Sample Duplicate (DUP)
1202886290	326849001(CAPA-13-29679) Post Spike (PS)
1202886291	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: 326849001 (CAPA-13-29679).

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

The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202886290 (CAPA-13-29679).

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

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

Holding Times

The following sample from this sample group was logged in for this analysis outside of the method specified holding time: 326849001 (CAPA-13-29679).

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: 1202886289 (CAPA-13-29679), 1202886290 (CAPA-13-29679) and 326849001 (CAPA-13-29679).

Sample Re-analysis

The following samples were re-analyzed due to CCV failure: 1202886288 (MB), 1202886289 (CAPA-13-29679), 1202886290 (CAPA-13-29679), 1202886291 (LCS) and 326849001 (CAPA-13-29679).

Miscellaneous Information**Data Exception (DER) Documentation**

The following DER was generated for this SDG: 1191949 1202886290 (CAPA-13-29679) and 326849001 (CAPA-13-29679).

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

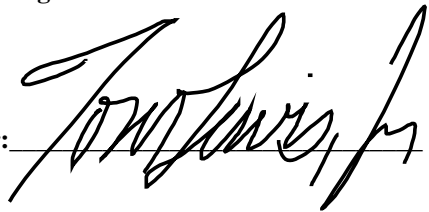
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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:

05Jun13

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: 2013-778-1 GEL Work Order: 326849

The Qualifiers in this report are defined as follows:

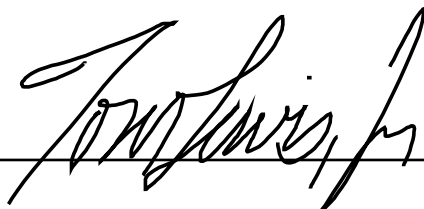
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- ** Analyte is a surrogate compound
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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

A handwritten signature in black ink, appearing to read 'Tom Davis', is written over a horizontal line.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 4, 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: 2013-778-1

Client Sample ID: CAPA-13-29679
Sample ID: 326849001
Matrix: W
Collect Date: 25-APR-13 14:18
Receive Date: 27-APR-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	H	378	8.50	25.0	mg/L	500	KLP1	06/04/13	1516	1305733	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: June 4, 2013
Page 1 of 2

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

Contact: Keith Greene

Workorder: 326849

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Nutrient Analysis											
Batch	1305733										
QC1202886289	326849001	DUP									
Nitrogen, Nitrate/Nitrite		H	378	H	385	mg/L	1.97	(0%-20%)	KLP1	06/04/13	15:17
QC1202886291	LCS										
Nitrogen, Nitrate/Nitrite	1.00				0.987	mg/L		98.7	(90%-110%)	06/04/13	15:15
QC1202886288	MB										
Nitrogen, Nitrate/Nitrite			U		ND	mg/L				06/04/13	15:14
QC1202886290	326849001	PS									
Nitrogen, Nitrate/Nitrite	1.00	H	0.755	H	2.00	mg/L		125 *	(90%-110%)	06/04/13	15:19

Notes:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- h Preparation or preservation holding time was exceeded

GEL LABORATORIES LLC

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QC Summary

Workorder: 326849

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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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. 04-JUN-13	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 353.2	Matrix Type: Liquid	Client Code: ESHL
Batch ID: 1305733	Sample Numbers: See below.		
Potentially affected work order(s)(SDG): 326849(2013-778-1) Application Issues: Failed Recovery for MS/PS Sample Analyzed out of Holding Sample Logged out of Holding			
Specification and Requirements Exception Description:		DER Disposition:	
1. Failed Recovery for PS: QC 1202886290PS 2. Sample Logged out of Holding: 326849 001		1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 2. Sample was logged out of holding; sample is a relog.	

Originator's Name:
Kristen Parson 04-JUN-13

Data Validator/Group Leader:
Julia Hamilton 04-JUN-13