

The order of this data package is as follows:

1. Chain-of-Custody/Lab Request
2. Copies of field COCs
3. Validation Report
4. Laboratory analysis

Comments:

[illegible]

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11605

EVENT NAME: Water/CdV (TA16 260) Q1 MY2018

SAMPLE ID: CAWA-18-148903

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/05/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1131	OK	MEDIA:	NA	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	CdV-16-2(i)r		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:	↓		SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8330B-NMED HEXMOD	1 LITER AMBER GLASS	3	ICE	Y	NA

SAMPLE COMMENTS: Sampled 50 ft from running diesel generator

LOCATION COMMENTS: HE spot test yields negative results

FIELD PARAMETERS:

Sample Time	NA	HH:MM	Discharge Rate	3gpm	Dissolved Oxygen	7.03
Groundwater Elevation	661.71' msl		Oxidation-Reduction Potential	225.0	Period Purge Volume	NA
pH	6.89		Purge Volume	22 gal	Specific Conductance	120.8
Temperature	11.4		Total Volume Pumped	108	Turbidity	4.4

COLLECTED BY (PRINT): W. Sanchez

RELINQUISHED BY (Printed Name) Daniel Jaramila (Signature) <i>[Signature]</i>	Date/Time 1510 12/5/17	RECEIVED BY MATT ENGELBERT (Printed Name) (Signature) <i>[Signature]</i>	Date/Time 12-5-17 1510
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11605

EVENT NAME: Water/CdV (TA16 260) Q1 MY2018

SAMPLE ID: CAWA-18-148904

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/05/2017	OK	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1413	OK	MEDIA:	NA	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	CDV-16-4ip S1		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:	↓		SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:			EXCAVATED:		YES / NO / N/A

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8330B-NMED HEXMOD	1 LITER AMBER GLASS	3	ICE	Y	NA


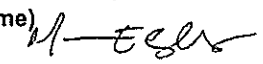
SAMPLE COMMENTS: HE spot test yields negative results

LOCATION COMMENTS: hae

FIELD PARAMETERS:

Sample Time	1413	HH:MM	Discharge Rate	9.37	Dissolved Oxygen	7.29
Groundwater Elevation	6645.9		Oxidation-Reduction Potential	283.3	Period Purge Volume	NA
pH	6.98		Purge Volume	262.3 gal	Specific Conductance	122.6
Temperature	11.0		Total Volume Pumped	337.32	Turbidity	0.5

COLLECTED BY (PRINT): D Hughes

RELINQUISHED BY (Printed Name) Daniel Branch (Signature) 	Date/Time 1510 12/5/17	RECEIVED BY MATT ENGERT (Printed Name) (Signature) 	Date/Time 12-5-17 1510
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11605

EVENT NAME: Water/CdV (TA16 260) Q1 MY2018

SAMPLE ID: CAWA-18-148913

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYYY):	12/05/2017	ck	FIELD MATRIX:	WG	ck
TIME COLLECTED (HH:MM):	1300	ck	MEDIA:	NA	
PRS ID:	NA		SAMPLE TECH CODE:	GSP	
LOCATION ID:	R-63		FIELD PREP:	UF	
LOCATION TYPE:	NA		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	INV	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8330B-NMED HEXMOD	1 LITER AMBER GLASS	3	ICE	Y	NA

SAMPLE COMMENTS: HE SPOT Test yields negative results

LOCATION COMMENTS: Sampled SPT from remaining diesel generator

FIELD PARAMETERS:

Sample Time	1300	HH:MM	Discharge Rate	7.5	Dissolved Oxygen	5.86
Groundwater Elevation	NA		Oxidation-Reduction Potential	198.3	Period Purge Volume	NA
pH	7.44		Purge Volume	315	Specific Conductance	105.5
Temperature	15.1		Total Volume Pumped	555	Turbidity	1.9

COLLECTED BY (PRINT): D. Hyle

RELINQUISHED BY (Printed Name) <i>Daniel Jaramila</i> (Signature) <i>[Signature]</i>	Date/Time 12/5/17 1510	RECEIVED BY <i>MATT ENGUERT</i> (Printed Name) <i>[Signature]</i> (Signature)	Date/Time 12-5-17 1510
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

TEST – Explosives		YES	NO
Samples collected from a WFO area? (TAs -08, 09, 11, 14, 15, 16, 22, 36, 37, 39, 40, and 49)		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Field Test for Explosives Results		YES	NO
HE SPOT test result positive. If YES - Do not transport.		<input type="checkbox"/>	<input checked="" type="checkbox"/>

TEST – Chemical Preservation		YES	NO
Samples are chemically preserved?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Field Team Member Statement		YES	NO
Chemical preservation exceeds limits given 40 CFR 136, Table II – Required Containers, Preservation Techniques and Holding Times (footnote 3). If YES - Do not ship.		<input type="checkbox"/>	<input checked="" type="checkbox"/>

TEST – Field Screen			YES	NO
The sample has field screening measurements of alpha activity and beta activity?			<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Activity (dpm/100cm ²)	Shipment Activity (dpm*g/100cm ²)	Sampled Location	YES	NO
Alpha detectable	AND Alpha ≥ 160,000	AT TA-1 and adjacent hillsides, TA-21, Acid Canyon, MDA C at TA-50, Area G at TA-54, TA-48, or TA-49	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alpha ≥ 125	AND Alpha ≥ 1,250,000	AT other locations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Beta ≥ 1,500	AND Beta ≥ 15,000,000	AT any location	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The sample Alpha ≥ 16,000,000 dpm*g/100cm ² or Beta ≥ 160,000,000 dpm*g/100cm ² . If YES – Do not ship.			<input type="checkbox"/>	<input checked="" type="checkbox"/>
On the external surface of the sample container, alpha activity ≥ 24 dpm/cm ² , beta activity ≥ 240 dpm/cm ² , or surface activity ≥ 0.5 mR/hr. If YES – Do not ship.			<input type="checkbox"/>	<input checked="" type="checkbox"/>
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled Radioactive Material, Excepted Package – Limited Quantity of Material – UN2910, based on field screening measurements of alpha and beta activity.			<input type="checkbox"/>	<input checked="" type="checkbox"/>

TEST - Location		YES	NO
Prior analytical measurements of radioactive isotopes are available?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Activity (pCi/g)	Shipment Activity (pCi)	YES	NO
• Am-241 ≥ 27 pCi/g	AND Am-241 ≥ 270,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Cs-137 ≥ 270 pCi/g	AND Cs-137 ≥ 270,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Pu-238 ≥ 27 pCi/g	AND Pu-238 ≥ 270,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Pu-239/240 ≥ 27 pCi/g	AND Pu-239/240 ≥ 270,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Th-228 ≥ 27 pCi/g	AND Th-228 ≥ 270,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• U-234 ≥ 270 pCi/g	AND U-234 ≥ 1,600,000,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• U-238 ≥ 270 pCi/g	AND U-238 ≥ unlimited	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• H-3 ≥ 27,000,000 pCi/g	AND H-3 ≥ 27,000,000,000 pCi Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Am-241, Pu-238, Pu-239/240, or Th-228 ≥ 27,000,000 pCi; or Cs-137 ≥ 270,000,000 pCi or U-234 ≥ 160,000,000 pCi; or H-3 ≥ 1 Ci. If YES – Do not ship.		<input type="checkbox"/>	<input checked="" type="checkbox"/>
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled Radioactive Material, Excepted Package – Limited Quantity of Material – UN2910, based on prior analytical measurements of radioactive isotopes.		<input type="checkbox"/>	<input checked="" type="checkbox"/>

TEST – AK		YES	NO
The shippers documented knowledge of the sample positively identifies appropriate labeling.		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documented Field Team Member Statement		YES	NO
The sample is tentatively identified as DOT Hazard Class 7 (Radioactive). The shipment is labeled <i>Radioactive Material, Excepted Package – Limited Quantity of Material – UN2910</i> , and the sample is submitted to ARS or RP for hazard classification analysis.		<input type="checkbox"/>	<input checked="" type="checkbox"/>

These samples do not meet the criteria for classification in any hazard class according to regulation OSHA 29 CFR 1910.1200. The sample(s) contained in this shipment have been assigned a tentative proper DOT shipping name, hazard class, identification number, and packing group, based on the shipper's knowledge of the sample:

Hazard Assessment Completed By:	Date/Time
(Printed Name) <i>Daniel Jaramila</i>	12/5/17
(Signature) <i>[Signature]</i>	1510

Hazard Assessment Reviewed By:	Date/Time
(Printed Name) <i>MATT ENGLERT</i>	12-6-17
(Signature) <i>[Signature]</i>	0703

DATA VALIDATION REPORT

Chain Of Custody No. 2018-1203

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
439728	EPA:170.0	3				
439728	SW-846:8330B	3				

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	Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spike	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
439728	EPA:170.0	NA	NA	3																	
439728	SW-846:8330B	1725538	1725537	3					1	1	1			1							

2. Distribution Of Analytes In EDD.

Analytical Method	Analytical Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spiked Compounds	TICS
EPA:170.0	VOC	CAWA-18-148903	439728001	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-148904	439728002	REG	1	0	0	0
EPA:170.0	VOC	CAWA-18-148913	439728003	REG	1	0	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148903	439728001	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148904	439728002	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148913	1203936823	MS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148913	1203936824	MSD	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	CAWA-18-148913	439728003	REG	23	1	0	0
SW-846:8330B	LCMS/MS HIGH	LCS	1203936822	LCS	0	1	23	0
SW-846:8330B	LCMS/MS HIGH	MB	1203936821	MB	23	1	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

Only results shown in Section 13 'Display Flagged Data' are current as of this report generation. All other sections are valid for the date the COC data was inserted into EIM, and may have changed due to data updates in the intervening time.

DATA VALIDATION REPORT

No.

5. Any 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?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

DATA VALIDATION REPORT

13. Display Flagged Data.

None.

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

14. Usable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total Records
CAWA-18-148903	CdV-16-2(i)r	REG	EPA:170.0	0	1
CAWA-18-148903	CdV-16-2(i)r	REG	SW-846:8330B	0	23
CAWA-18-148904	CDV-16-4ip S1	REG	EPA:170.0	0	1
CAWA-18-148904	CDV-16-4ip S1	REG	SW-846:8330B	0	23
CAWA-18-148913	R-63	REG	EPA:170.0	0	1
CAWA-18-148913	R-63	REG	SW-846:8330B	0	23

December 19, 2017

gel.com

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

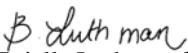
Re: LANL- WQH Water Samples
Work Order: 439728
SDG: 2018-1203

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on December 09, 2017, and analyzed for Explosives by LCMSMS. 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,


Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-1203
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 439728
SDG: 2018-1203

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 439728
SDG # : 2018-1203**

December 19, 2017

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 December 09, 2017 for analysis. The samples were 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 temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
439728001	CAWA-18-148903
439728002	CAWA-18-148904
439728003	CAWA-18-148913

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.

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.

B. Luthman
Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 19 December 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122018-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-25
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

[illegible]

Special Instructions:				Print Name:	Received by:	Date/Time:
Relinquished by: <i>M. Eger</i>	Print Name: <i>MATT ENGELST</i>	Date/Time: <i>12-8-07</i>	<i>[Signature]</i>	<i>H. Taylor</i>	<i>[Signature]</i>	<i>12/8/07</i>
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:	
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:	



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>ARSL</u>		SDG/AR/COC/Work Order: <u>439728</u>	
Received By: <u>H. Taylor</u>		Date Received: <u>120917</u>	
Carrier and Tracking Number		Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other <u>5908 1783 2990-4</u> <u>5908 1783 3025-4</u> <u>5908 1783 3117-3</u> <u>2989-4</u> <u>3047-3</u> <u>3003-3</u> <u>2905-4</u> <u>2956-4</u> <u>2967-3</u> <u>3030-4</u> <u>3014-4</u> <u>3128-6</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.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____	

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 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Wet Ice Ice Packs Dry ice None Other: _____ *all temperatures are recorded in Celsius TEMP: _____
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: _____ Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken <u>Damaged container</u> Leaking container Other (describe) <u>HELP</u> <u>BDW01-18-150415/SVA</u> <u>CALWA-18-148903</u>
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes _____ No <input checked="" type="checkbox"/> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes _____ No <input checked="" type="checkbox"/> N/A (If unknown, select No) VOA vials free of headspace? Yes _____ No <input checked="" type="checkbox"/> N/A Sample ID's and containers affected: _____
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: _____
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"/>	

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials BL Date 12/12/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

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

SH1 08DEC17
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2916

LOS ALAMOS, NM 87545
UNITED STATES US

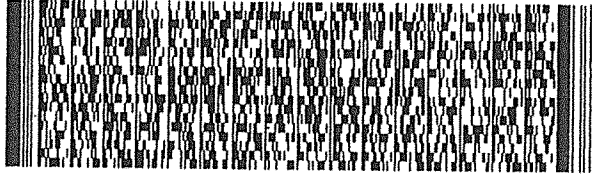
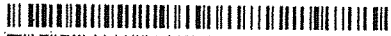
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 566-8171

REF: 21PDOASRGW04BAGWS0



FedEx
Express



1 of 2

TRK#
0201

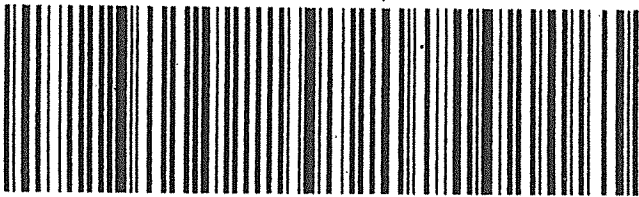
5908 1783 3117

MASTER

XO RBWA

29407

SC-US CHS



SATURDAY 12:00P
PRIORITY OVERNIGHT

SHIP DATE: 08DEC17
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2916

BILL SENDER

B
1
12:00 2967
12.09

707
RT

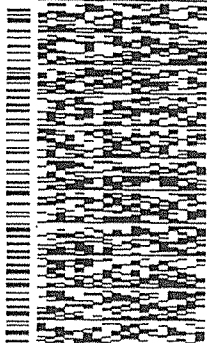
FZ B92

VALERIE DAVIS
GENERAL ENGINEERING
2040 SAVAGE RD

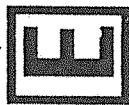
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(843) 566-8171

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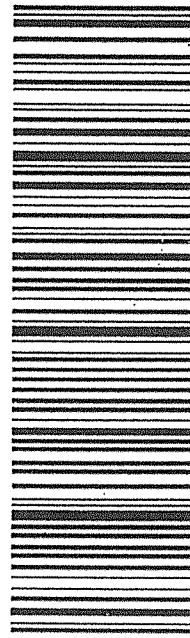
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ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08DEC17
ACTWGT: 48.0 LB MAN
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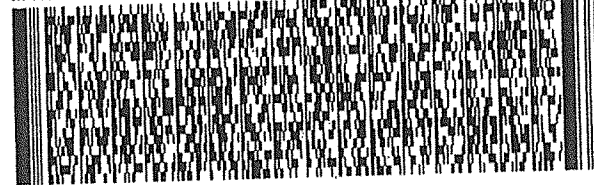
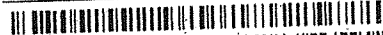
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KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

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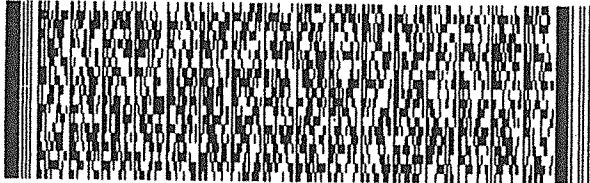
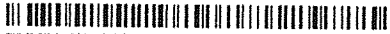
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GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 566-8171

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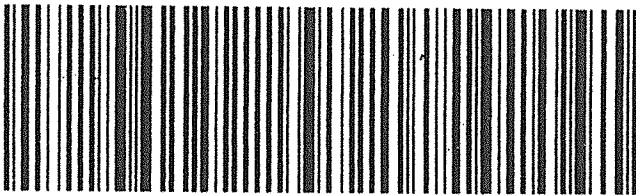
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CAD: 0014176/CAFE2916

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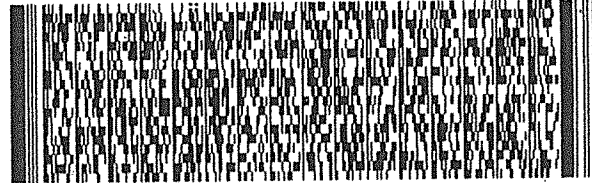
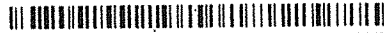
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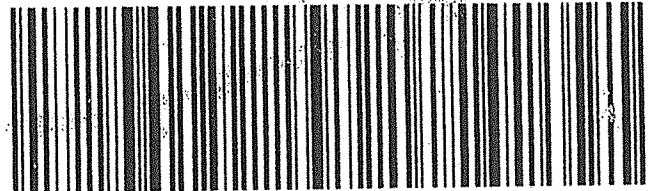
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SC-US CHS



Part # 156148V-434 RIT2 06/15 33

SHIP DATE: 08DEC17
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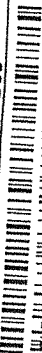
ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
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LOS ALAMOS, NM 87545
UNITED STATES US

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

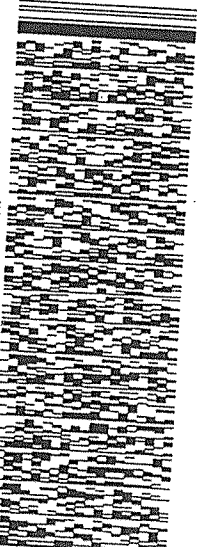
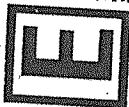
CHARLESTON SC 29407

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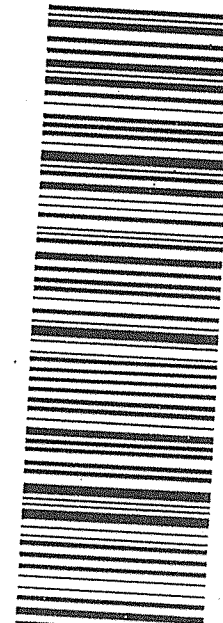
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29407
SC-US CHS



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: 08DEC17
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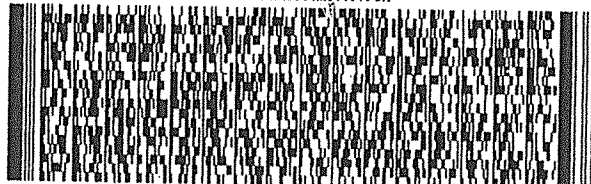
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GENERAL ENGINEERING LAB
2040 SAVAGE RD

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REF: 21PDOACSWSE0SWS00



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2 of 3

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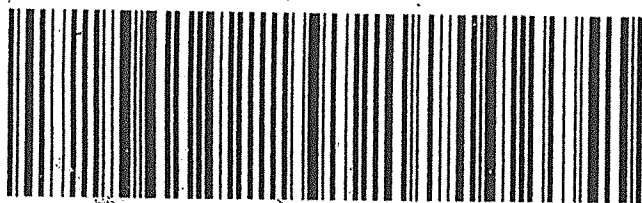
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Part # 156148V-494 RIT2 06/15 33

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ORIGIN ID:SAFA (505) 661
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

CAD: 0014176/CAFE2916

LOS ALAMOS, NM 87545
UNITED STATES US

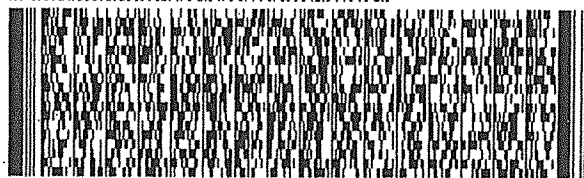
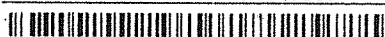
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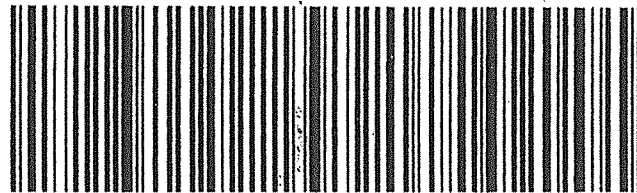
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Part # 156148V-494 RIT2 06/15 33

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LOS ALAMOS NATL LAB.
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LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08DEC17
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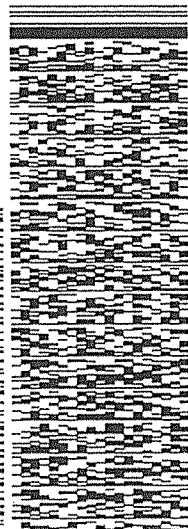
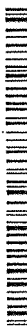
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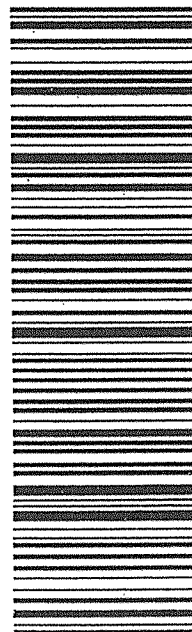
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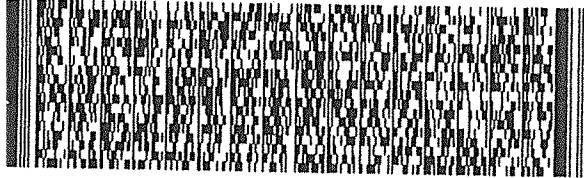
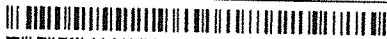
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CHARLESTON SC 29407

(843) 566-8171

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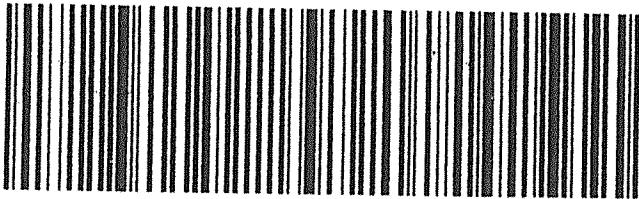
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SATURDAY 12:00P
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ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

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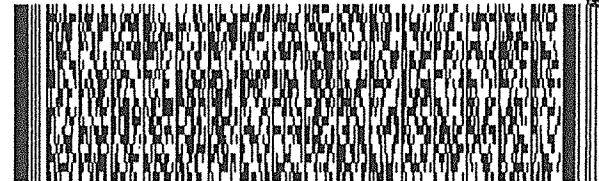
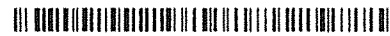
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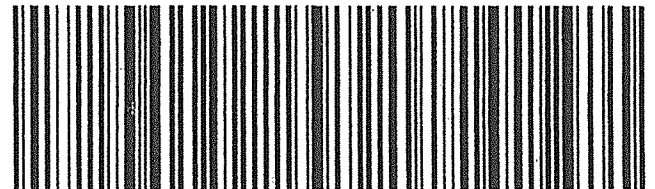
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SHIP DATE: 08DEC17
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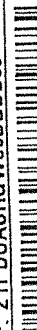
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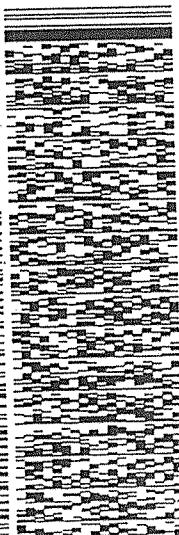
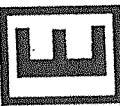
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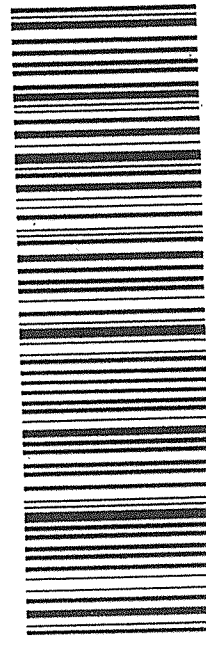
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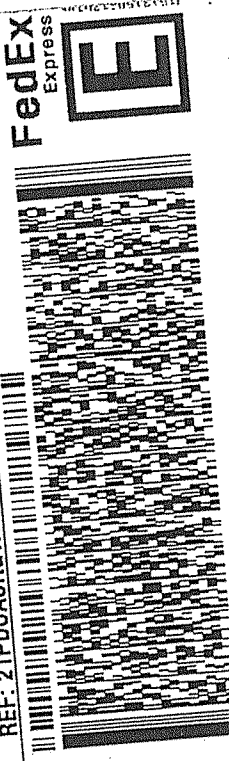


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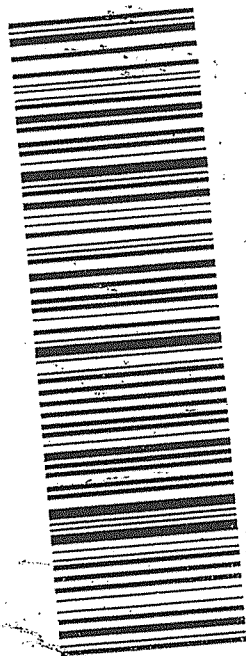
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Part # 156148V-431

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

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

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

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

Explosives by LCMSMS Analysis

Case Narrative

**Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-1203
Work Order #: 439728**

Method/Analysis Information

Procedure: The Processing, Extraction, and Analysis of Nitroaromatics, Nitroamines, and Nitrate Esters by SW-846 8330B

Analytical Method: SW846 3535A/8330B

Prep Method: SW846 3535A

Analytical Batch Number: 1725538

Prep Batch Number: 1725537

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8330B:

Sample ID	Client ID
439728001	CAWA-18-148903
439728002	CAWA-18-148904
439728003	CAWA-18-148913
1203936821	Method Blank (MB)
1203936822	Laboratory Control Sample (LCS)
1203936823	439728003(CAWA-18-148913) Matrix Spike (MS)
1203936824	439728003(CAWA-18-148913) 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-068 REV# 7.

Calibration Information

Initial Calibration

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

Calibration Verification Standard Requirements

All calibration verification standards (ICV or CCV) have not met requirements of 80-120% for samples in this SDG. Please refer to Form 7 of the data package for a list of recoveries. Since the recoveries are biased high and target analytes were not detected in the associated samples, the data are considered unaffected. The data are reported.

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 439728003 (CAWA-18-148913) 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.

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 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. 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

In accordance with GEL SOP GL-OA-056, all sample and QC extracts are diluted 1:1 v/v with LC reagent grade Water. Samples 439728001 (CAWA-18-148903) and 439728002 (CAWA-18-148904) were further diluted due to over range target analytes. The final dilution in each case takes the 1:1 v/v dilution into account.

Analyte	439728	
	001	002
RDX	25X	40X

Sample Re-extraction/Re-analysis

Sample 439728003 (CAWA-18-148913) was re-analyzed to confirm potential carryover from the previous sample analysis. The re-analysis data are reported.

Miscellaneous Information**Manual Integrations**

Manual integrations were not required for any data file associated with this SDG.

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, file extensions such as DL, RE, etc. may not appear on the generated forms and/or raw data. Relative Retention Time (RRT) is used by the laboratory to establish peak identity. The RRT of each target analyte is calculated using the retention time of the corresponding internal standard. The RRT of each analyte in a sample must be within 2.0 of the analyte's calculated RRT in the ICV.

System Configuration

The laboratory 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 LC/MS/MS #3 or LC/MS/MS #4. The laboratory also utilizes a Shimadzu Nexera XC liquid chromatography instrument for Primary and/or Secondary analyte analysis. It is coupled with an Applied Biosystems 5500 Mass Spectrometer/ Mass Spectrometer, designated as LC/MS/MS #5. All are 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 LC-MS/MS Explosives analysis was performed on a ABSciex 5500 LCMSMS.

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

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

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

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-1203 GEL Work Order: 439728

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, MDC 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 DEC 2017

Title: Group Leader

Sample Data Summary

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148903

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728001

Sample Amount 970 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213018.wiff

Date Analyzed: 13-DEC-17 20:28

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0825	U	0.0825	0.258
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0825	U	0.0825	0.258
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0825	U	0.0825	0.258
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.0825	U	0.0825	0.515
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.0825	U	0.0825	0.258
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	.0825	U	0.0825	0.258
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0825	U	0.0825	0.258
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-65-0	m-Dinitrobenzene	.0825	U	0.0825	0.258
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0845	U	0.0845	0.258
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0856	J	0.0825	0.258
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
78-11-5	PETN	.103	U	0.103	0.515
<i>78-11-5</i>	<i>PETN</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.105	J	0.0825	0.258
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
13980-04-6	TNX	.126	J	0.0825	0.258
<i>13980-04-6</i>	<i>TNX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148903

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728001

Sample Amount 970 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-99-0	p-Nitrotoluene	.155	U	0.155	0.515
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
80251-29-2	DNX	.199	J	0.0825	0.258
<i>80251-29-2</i>	<i>DNX</i>				
3058-38-6	TATB	.309	U	0.309	1.03
<i>3058-38-6</i>	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.309	U	0.309	1.03
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.309	U	0.309	1.03
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.515	U	0.515	2.58
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.515	U	0.515	2.58
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
5755-27-1	MNX	.541		0.0825	0.258
<i>5755-27-1</i>	<i>MNX</i>				
2691-41-0	HMX	1.45		0.0825	0.258
<i>2691-41-0</i>	<i>HMX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148903

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728001

Sample Amount 970 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213052.wiff

Date Analyzed: 14-DEC-17 16:22

Dilution Factor: 25

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	126		1.03	3.22
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148904

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728002

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213019.wiff

Date Analyzed: 13-DEC-17 21:03

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0842	U	0.0842	0.263
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0842	U	0.0842	0.263
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0842	U	0.0842	0.263
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.0842	U	0.0842	0.526
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	.0842	U	0.0842	0.263
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	.0842	U	0.0842	0.263
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0842	U	0.0842	0.263
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-65-0	m-Dinitrobenzene	.0842	U	0.0842	0.263
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0863	U	0.0863	0.263
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0947	J	0.0842	0.263
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
78-11-5	PETN	.105	U	0.105	0.526
<i>78-11-5</i>	<i>PETN</i>				
99-99-0	p-Nitrotoluene	.158	U	0.158	0.526
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
13980-04-6	TNX	.234	J	0.0842	0.263
<i>13980-04-6</i>	<i>TNX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148904

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728002

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	.287		0.0842	0.263
80251-29-2	DNX				
3058-38-6	TATB	.316	U	0.316	1.05
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.316	U	0.316	1.05
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.316	U	0.316	1.05
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	.526	U	0.526	2.63
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.526	U	0.526	2.63
6629-29-4	2,4-Diamino-6-nitrotoluene				
5755-27-1	MNX	.616		0.0842	0.263
5755-27-1	MNX				
19406-51-0	4-Amino-2,6-dinitrotoluene	1.53		0.0842	0.263
19406-51-0	4-Amino-2,6-dinitrotoluene				
2691-41-0	HMX	8.29		0.0842	0.263
2691-41-0	HMX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148904

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728002

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213053.wiff

Date Analyzed: 14-DEC-17 16:57

Dilution Factor: 40

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	177		1.68	5.26
121-82-4	RDX				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148913

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728003

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213045.wiff

Date Analyzed: 14-DEC-17 12:16

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.0842	U	0.0842	0.263
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.0842	U	0.0842	0.263
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
13980-04-6	TNX	.0842	U	0.0842	0.263
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.0842	U	0.0842	0.263
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	.0842	U	0.0842	0.263
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.0842	U	0.0842	0.263
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.0842	U	0.0842	0.526
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MNX	.0842	U	0.0842	0.263
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	.0842	U	0.0842	0.263
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.0842	U	0.0842	0.263
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.0842	U	0.0842	0.263
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.0842	U	0.0842	0.263
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
99-35-4	1,3,5-Trinitrobenzene	.0842	U	0.0842	0.263
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148913

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 439728003

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-65-0	m-Dinitrobenzene	.0842	U	0.0842	0.263
99-65-0	<i>m-Dinitrobenzene</i>				
88-72-2	o-Nitrotoluene	.0863	U	0.0863	0.263
88-72-2	<i>o-Nitrotoluene</i>				
78-11-5	PETN	.105	U	0.105	0.526
78-11-5	<i>PETN</i>				
99-99-0	p-Nitrotoluene	.158	U	0.158	0.526
99-99-0	<i>p-Nitrotoluene</i>				
3058-38-6	TATB	.316	U	0.316	1.05
3058-38-6	<i>TATB</i>				
618-87-1	3,5-Dinitroaniline	.316	U	0.316	1.05
618-87-1	<i>3,5-Dinitroaniline</i>				
78-30-8	tris(o-cresyl) phosphate	.316	U	0.316	1.05
78-30-8	<i>tris(o-cresyl) phosphate</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	.526	U	0.526	2.63
59229-75-3	<i>2,6-Diamino-4-nitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	.526	U	0.526	2.63
6629-29-4	<i>2,4-Diamino-6-nitrotoluene</i>				
121-82-4	RDX	1.51		0.0842	0.263
121-82-4	<i>RDX</i>				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLCGEL Job No (SDG): 2018-1203Lab Code: GEL

HPLC Column: Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
439728001	CAWA-18-148903	89	55 - 115	
439728001	CAWA-18-148903DL	96	55 - 115	
439728002	CAWA-18-148904	90	55 - 115	
439728002	CAWA-18-148904DL	96	55 - 115	
439728003	CAWA-18-148913	96	55 - 115	
1203936821	MB for batch 1725537	105	55 - 115	
1203936822	LCS for batch 1725537	94	55 - 115	
1203936823	CAWA-18-148913MS	85	55 - 115	
1203936824	CAWA-18-148913MSD	94	55 - 115	

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) 2018-1203

Extract Batch Code: 1725537

Date Extracted: 12-DEC-17

GEL LCS ID: 1203936822

GEL LCSDUP ID: .

Analysis Date/Time: 13-DEC-17 19:53

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
p-Nitrotoluene	5	4.32	86					66 - 127
tris(o-cresyl) phosphate	5	3.7	74					43 - 104
o-Nitrotoluene	5	3.65	73					64 - 115
1,3,5-Trinitrobenzene	5	4.97	99					70 - 110
2,4,6-Trinitrotoluene	5	4.87	97					69 - 113
2,4-Diamino-6-nitrotoluene	5	5.35	107					50 - 121
2,4-Dinitrotoluene	5	4.78	96					71 - 110
2,6-Diamino-4-nitrotoluene	5	4.6	92					53 - 127
2,6-Dinitrotoluene	5	4.42	88					72 - 105
2-Amino-4,6-dinitrotoluene	5	4.74	95					70 - 112
3,5-Dinitroaniline	5	4.29	86					70 - 121
4-Amino-2,6-dinitrotoluene	5	4.48	90					74 - 116
DNX	.5	.457	91					65 - 113
HMX	5	4.74	95					58 - 113
MNX	.5	.484	97					66 - 114
Nitrobenzene	5	4.48	90					64 - 115
PETN	5	4.69	94					57 - 126
RDX	5	5.17	103					64 - 117
TATB	3	2.57	86					47 - 135
TNX	.5	.462	92					51 - 110
Tetryl	5	4.59	92					55 - 122
m-Dinitrobenzene	5	4.96	99					74 - 117
m-Nitrotoluene	5	4.8	96					66 - 114

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: CAWA-18-148913

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Extract Batch Code: 1725537

Date Extracted: 12-DEC-17

GEL Spike ID: 1203936823

GEL SpikeDup ID: 1203936824

Analysis Date/Time: 13-DEC-17 22:13

MSD Analysis Date/Time: 13-DEC-17 22:49

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
2,4-Dinitrotoluene	5.26316	0	4.52	86	4.79	90	6	30	69 - 113
2,6-Diamino-4-nitrotoluene	5.26316	0	5.85	111	5.4	101	8	30	53 - 127
2,6-Dinitrotoluene	5.26316	0	4.43	84	4.64	87	5	30	70 - 106
2-Amino-4,6-dinitrotoluene	5.26316	0	4.47	85	5.23	98	16	30	67 - 115
3,5-Dinitroaniline	5.26316	0	4.44	84	4.84	91	9	30	70 - 121
4-Amino-2,6-dinitrotoluene	5.26316	0	4.46	85	5.34	100	18	30	65 - 120
DNX	.52632	0	.446	85	.559	105	22	30	53 - 124
HMX	5.26316	0	4.69	89	5.05	95	7	30	44 - 128
MNX	.52632	0	.472	90	.498	94	5	30	60 - 121
Nitrobenzene	5.26316	0	4.28	81	4.75	89	10	30	62 - 116
PETN	5.26316	0	4.7	89	5.64	106	18	30	51 - 131
RDX	5.26316	1.51	6.74	99	7.69	116	13	30	57 - 125
TATB	3.15789	0	2.6	82	3.45	108	28	30	38 - 149
TNX	.52632	0	.471	89	.43	81	9	30	46 - 120
Tetryl	5.26316	0	4.38	83	4.49	84	2	30	50 - 126
m-Dinitrobenzene	5.26316	0	4.87	92	5.45	103	11	30	74 - 117
m-Nitrotoluene	5.26316	0	4.18	79	4.16	78	1	30	59 - 120
o-Nitrotoluene	5.26316	0	4.28	81	4.12	78	4	30	56 - 119
p-Nitrotoluene	5.26316	0	4.12	78	4.43	83	7	30	61 - 129
tris(o-cresyl) phosphate	5.26316	0	3.54	67	4.34	82	20	30	38 - 105
1,3,5-Trinitrobenzene	5.26316	0	4.73	90	4.78	90	1	30	67 - 111
2,4,6-Trinitrotoluene	5.26316	0	4.49	85	5.13	96	13	30	66 - 112
2,4-Diamino-6-nitrotoluene	5.26316	0	5.72	109	5.25	99	9	30	50 - 121

#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 1725537

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936821

Sample Amount 1000 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213016.wiff

Date Analyzed: 13-DEC-17 19:18

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.08	U	0.080	0.250
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	.08	U	0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
121-82-4	RDX	.08	U	0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				
13980-04-6	TNX	.08	U	0.080	0.250
<i>13980-04-6</i>	<i>TNX</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	.08	U	0.080	0.250
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
2691-41-0	HMX	.08	U	0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	.08	U	0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
479-45-8	Tetryl	.08	U	0.080	0.500
<i>479-45-8</i>	<i>Tetryl</i>				
5755-27-1	MNX	.08	U	0.080	0.250
<i>5755-27-1</i>	<i>MNX</i>				
606-20-2	2,6-Dinitrotoluene	.08	U	0.080	0.250
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
80251-29-2	DNX	.08	U	0.080	0.250
<i>80251-29-2</i>	<i>DNX</i>				
98-95-3	Nitrobenzene	.08	U	0.080	0.250
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-08-1	m-Nitrotoluene	.08	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 1725537

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936821

Sample Amount 1000 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	.08	U	0.080	0.250
99-35-4	1,3,5-Trinitrobenzene				
99-65-0	m-Dinitrobenzene	.08	U	0.080	0.250
99-65-0	m-Dinitrobenzene				
88-72-2	o-Nitrotoluene	.082	U	0.082	0.250
88-72-2	o-Nitrotoluene				
78-11-5	PETN	.1	U	0.100	0.500
78-11-5	PETN				
99-99-0	p-Nitrotoluene	.15	U	0.150	0.500
99-99-0	p-Nitrotoluene				
3058-38-6	TATB	.3	U	0.300	1.00
3058-38-6	TATB				
618-87-1	3,5-Dinitroaniline	.3	U	0.300	1.00
618-87-1	3,5-Dinitroaniline				
78-30-8	tris(o-cresyl) phosphate	.3	U	0.300	1.00
78-30-8	tris(o-cresyl) phosphate				
59229-75-3	2,6-Diamino-4-nitrotoluene	.5	U	0.500	2.50
59229-75-3	2,6-Diamino-4-nitrotoluene				
6629-29-4	2,4-Diamino-6-nitrotoluene	.5	U	0.500	2.50
6629-29-4	2,4-Diamino-6-nitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1725537

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936822

Sample Amount 1000 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213017.wiff

Date Analyzed: 13-DEC-17 19:53

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	.457		0.080	0.250
80251-29-2	DNX				
13980-04-6	TNX	.462		0.080	0.250
13980-04-6	TNX				
5755-27-1	MNX	.484		0.080	0.250
5755-27-1	MNX				
3058-38-6	TATB	2.57		0.300	1.00
3058-38-6	TATB				
88-72-2	o-Nitrotoluene	3.65		0.082	0.250
88-72-2	o-Nitrotoluene				
78-30-8	tris(o-cresyl) phosphate	3.7		0.300	1.00
78-30-8	tris(o-cresyl) phosphate				
618-87-1	3,5-Dinitroaniline	4.29		0.300	1.00
618-87-1	3,5-Dinitroaniline				
99-99-0	p-Nitrotoluene	4.32		0.150	0.500
99-99-0	p-Nitrotoluene				
606-20-2	2,6-Dinitrotoluene	4.42		0.080	0.250
606-20-2	2,6-Dinitrotoluene				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.48		0.080	0.250
19406-51-0	4-Amino-2,6-dinitrotoluene				
98-95-3	Nitrobenzene	4.48		0.080	0.250
98-95-3	Nitrobenzene				
479-45-8	Tetryl	4.59		0.080	0.500
479-45-8	Tetryl				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.6		0.500	2.50
59229-75-3	2,6-Diamino-4-nitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1725537

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936822

Sample Amount 1000 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
78-11-5	PETN	4.69		0.100	0.500
<i>78-11-5</i>	<i>PETN</i>				
2691-41-0	HMX	4.74		0.080	0.250
<i>2691-41-0</i>	<i>HMX</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.74		0.080	0.250
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	4.78		0.080	0.250
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
99-08-1	m-Nitrotoluene	4.8		0.080	0.250
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	4.87		0.080	0.250
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
99-65-0	m-Dinitrobenzene	4.96		0.080	0.250
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
99-35-4	1,3,5-Trinitrobenzene	4.97		0.080	0.250
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
121-82-4	RDX	5.17		0.080	0.250
<i>121-82-4</i>	<i>RDX</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.35		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: CAWA-18-148913(439728003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936823

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213021.wiff

Date Analyzed: 13-DEC-17 22:13

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	.446		0.0842	0.263
80251-29-2	DNX				
13980-04-6	TNX	.471		0.0842	0.263
13980-04-6	TNX				
5755-27-1	MNX	.472		0.0842	0.263
5755-27-1	MNX				
3058-38-6	TATB	2.6		0.316	1.05
3058-38-6	TATB				
78-30-8	tris(o-cresyl) phosphate	3.54		0.316	1.05
78-30-8	tris(o-cresyl) phosphate				
99-99-0	p-Nitrotoluene	4.12		0.158	0.526
99-99-0	p-Nitrotoluene				
99-08-1	m-Nitrotoluene	4.18		0.0842	0.263
99-08-1	m-Nitrotoluene				
88-72-2	o-Nitrotoluene	4.28		0.0863	0.263
88-72-2	o-Nitrotoluene				
98-95-3	Nitrobenzene	4.28		0.0842	0.263
98-95-3	Nitrobenzene				
479-45-8	Tetryl	4.38		0.0842	0.526
479-45-8	Tetryl				
606-20-2	2,6-Dinitrotoluene	4.43		0.0842	0.263
606-20-2	2,6-Dinitrotoluene				
618-87-1	3,5-Dinitroaniline	4.44		0.316	1.05
618-87-1	3,5-Dinitroaniline				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.46		0.0842	0.263
19406-51-0	4-Amino-2,6-dinitrotoluene				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148913(439728003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936823

Sample Amount 950 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
35572-78-2	2-Amino-4,6-dinitrotoluene	4.47		0.0842	0.263
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
118-96-7	2,4,6-Trinitrotoluene	4.49		0.0842	0.263
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
121-14-2	2,4-Dinitrotoluene	4.52		0.0842	0.263
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				
2691-41-0	HMX	4.69		0.0842	0.263
<i>2691-41-0</i>	<i>HMX</i>				
78-11-5	PETN	4.7		0.105	0.526
<i>78-11-5</i>	<i>PETN</i>				
99-35-4	1,3,5-Trinitrobenzene	4.73		0.0842	0.263
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
99-65-0	m-Dinitrobenzene	4.87		0.0842	0.263
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.72		0.526	2.63
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.85		0.526	2.63
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
121-82-4	RDX	6.74		0.0842	0.263
<i>121-82-4</i>	<i>RDX</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148913(439728003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936824

Sample Amount 940 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP1213022.wiff

Date Analyzed: 13-DEC-17 22:49

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
13980-04-6	TNX	.43		0.0851	0.266
<i>13980-04-6</i>	<i>TNX</i>				
5755-27-1	MNX	.498		0.0851	0.266
<i>5755-27-1</i>	<i>MNX</i>				
80251-29-2	DNX	.559		0.0851	0.266
<i>80251-29-2</i>	<i>DNX</i>				
3058-38-6	TATB	3.45		0.319	1.06
<i>3058-38-6</i>	<i>TATB</i>				
88-72-2	o-Nitrotoluene	4.12		0.0872	0.266
<i>88-72-2</i>	<i>o-Nitrotoluene</i>				
99-08-1	m-Nitrotoluene	4.16		0.0851	0.266
<i>99-08-1</i>	<i>m-Nitrotoluene</i>				
78-30-8	tris(o-cresyl) phosphate	4.34		0.319	1.06
<i>78-30-8</i>	<i>tris(o-cresyl) phosphate</i>				
99-99-0	p-Nitrotoluene	4.43		0.160	0.532
<i>99-99-0</i>	<i>p-Nitrotoluene</i>				
479-45-8	Tetryl	4.49		0.0851	0.532
<i>479-45-8</i>	<i>Tetryl</i>				
606-20-2	2,6-Dinitrotoluene	4.64		0.0851	0.266
<i>606-20-2</i>	<i>2,6-Dinitrotoluene</i>				
98-95-3	Nitrobenzene	4.75		0.0851	0.266
<i>98-95-3</i>	<i>Nitrobenzene</i>				
99-35-4	1,3,5-Trinitrobenzene	4.78		0.0851	0.266
<i>99-35-4</i>	<i>1,3,5-Trinitrobenzene</i>				
121-14-2	2,4-Dinitrotoluene	4.79		0.0851	0.266
<i>121-14-2</i>	<i>2,4-Dinitrotoluene</i>				

1
High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAWA-18-148913(439728003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-1203

Matrix: WATER

GEL Sample ID: 1203936824

Sample Amount 940 mL

Date Received: 09-DEC-17

Moisture: .

Extraction Batch ID: 1725537

Extraction Type Sol Exchange

Date Extracted: 12-DEC-17

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

Cas No.	Compound	Concentration*	Q	MDL	PQL
618-87-1	3,5-Dinitroaniline	4.84		0.319	1.06
<i>618-87-1</i>	<i>3,5-Dinitroaniline</i>				
2691-41-0	HMX	5.05		0.0851	0.266
<i>2691-41-0</i>	<i>HMX</i>				
118-96-7	2,4,6-Trinitrotoluene	5.13		0.0851	0.266
<i>118-96-7</i>	<i>2,4,6-Trinitrotoluene</i>				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.23		0.0851	0.266
<i>35572-78-2</i>	<i>2-Amino-4,6-dinitrotoluene</i>				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.25		0.532	2.66
<i>6629-29-4</i>	<i>2,4-Diamino-6-nitrotoluene</i>				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.34		0.0851	0.266
<i>19406-51-0</i>	<i>4-Amino-2,6-dinitrotoluene</i>				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.4		0.532	2.66
<i>59229-75-3</i>	<i>2,6-Diamino-4-nitrotoluene</i>				
99-65-0	m-Dinitrobenzene	5.45		0.0851	0.266
<i>99-65-0</i>	<i>m-Dinitrobenzene</i>				
78-11-5	PETN	5.64		0.106	0.532
<i>78-11-5</i>	<i>PETN</i>				
121-82-4	RDX	7.69		0.0851	0.266
<i>121-82-4</i>	<i>RDX</i>				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1203Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 13-DEC-17 10:31GEL Data File: EXP1213001.wiffInstrument ID: LCMSMS7Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
2,6-Diamino-4-nitrotoluene	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
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

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLCGEL Job No(SDG): 2018-1203Lab Code: GELLab Sample ID: XIBLK01Analysis Date: 13-DEC-17 11:06GEL Data File: EXP1213002.wiffInstrument ID: LCMSMS7Column: Ultracarb Phenomenex 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
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): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 13-DEC-17 15:47

GEL Data File: EXP1213010.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
DNX	0	0
MXN	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
3,4-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 13-DEC-17 18:07

GEL Data File: EXP1213014.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
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
DNX	0	0
MXN	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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 13-DEC-17 23:24

GEL Data File: EXP1213023.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 14-DEC-17 00:34

GEL Data File: EXP1213025.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
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
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 14-DEC-17 01:44

GEL Data File: EXP1213027.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK07

Analysis Date: 14-DEC-17 07:35

GEL Data File: EXP1213037.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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
DNX	0	0
MXN	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK08

Analysis Date: 14-DEC-17 08:45

GEL Data File: EXP1213039.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK09

Analysis Date: 14-DEC-17 11:41

GEL Data File: EXP1213044.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
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
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
DNX	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK10

Analysis Date: 14-DEC-17 14:02

GEL Data File: EXP1213048.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK11

Analysis Date: 14-DEC-17 15:12

GEL Data File: EXP1213050.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK12

Analysis Date: 14-DEC-17 17:32

GEL Data File: EXP1213054.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
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
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

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK13

Analysis Date: 14-DEC-17 21:38

GEL Data File: EXP1213061.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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): 2018-1203

Lab Code: GEL

Lab Sample ID: XIBLK14

Analysis Date: 14-DEC-17 22:48

GEL Data File: EXP1213063.wiff

Instrument ID: LCMSMS7

Column: Ultracarb Phenomenex 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
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
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