



Sandia National Laboratories SAND2009-3068P

Operated for the U.S. Department of Energy's
National Nuclear Security Administration
by Sandia Corporation

Michael W. Hazen
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MAY 20 2009

Ms. Kimberly A. Davis, Acting Manager
U. S. Department of Energy
National Nuclear Security Administration
Sandia Site Office, MS-0184
P. O. Box 5400
Albuquerque, NM 87185-0184

Dear Ms. Davis:

**Subject: Transmittal of Requested Information, Sandia National Laboratories, EPA ID#
NM5890110518**

**Reference: Letter from James P. Bearzi to Kimberly A. Davis and Michael W. Hazen, dated
April 30, 2009**

**Please forward the enclosed information to the New Mexico Environment Department
(NMED) in response to the referenced NMED request dated April 30, 2009.**

Sampling Activities

On March 16, 2009, after briefing all those present regarding applicable safety requirements, Sandia personnel collected five soil samples from locations specified by NMED personnel at the Thermal Treatment Unit (TTU) at Sandia National Laboratories/New Mexico (SNL/NM). The locations, on the inside face of the soil berm on three sides of the TTU, are shown in Figure 1. Photographs of each sample location are included as Figures 2 through 5.

At each location, soil was scooped from the uppermost six inches with a clean stainless steel trowel and placed into a stainless steel mixing bowl. Rocks were discarded, the soil was mixed thoroughly, and the NMED and Sandia sample containers were filled and closed. The sampling trowel and bowl were decontaminated between samples by brushing off loose soil and then washing with Alconox detergent and deionized water. The decontamination water was discharged onto the steel-lined concrete pad that surrounds the burn cage at the TTU. Most of the water evaporated; water that did not evaporate flowed to the northwest corner of the pad into the catch tank. Equipment blank samples were collected by pouring deionized



Exceptional Service in the National Interest



MAY 20 2009

(DI) water over the decontaminated scoop and into the decontaminated bowl, swishing the water around in the bowl, and pouring the water from the bowl into the sample containers.

Analytical Results

The Sandia samples were submitted to GEL Laboratories LLC under Analysis Request and Chain of Custody (ARCO) 612145. The samples were analyzed for silver using EPA Method 6010 and for high explosives (HE) using EPA Method 8330. The analytical data were validated by Analytical Quality Associates, Inc. The analytical results are summarized in Table 1, the data package (including quality control data) is included in Enclosure A, and the data validation results are included in Enclosure B.

If you have any questions regarding this submittal, please contact one of the following members of my staff Terry Cooper, Manager at 284-1831 or Anita Reiser at 284-4048.

Sincerely,


Michael W. Hazen, Vice President
Sandia National Laboratories

Enclosures:

1. Enclosure A - Analytical Data
2. Enclosure B - Analytical Data Review and Validation

Copy to (w/enclosures):

MS-0184 David Rast, NNSA/SSO

BCC (w/enclosures):

MS-0141 Amy Blumberg, 11100,
MS-0651 Customer Funded Record Center, 9532
MS-1042 Anita Reiser, 4133
MS-1112 David Castillo, 4139
MS-1454 Tim Covert, 2552

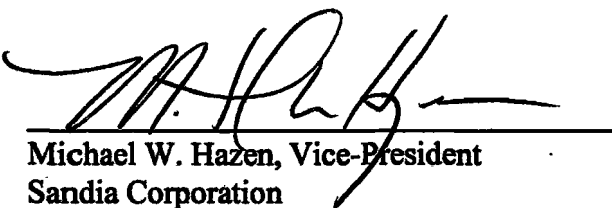
BCC (w/o enclosures):

MS-1037 Robert Brandhuber, 4130
MS-1042 Terry Cooper, 4133
MS-1051 Brian Bielecki, 4100
MS-1151 James Thompson, 4139
MS-1452 Kathryn Knowles, 2552
MS-0143 Michael Hazen, 4000

**SOIL SAMPLES AT THERMAL TREATMENT UNIT
MARCH 16, 2009
SANDIA NATIONAL LABORATORIES
EPA ID# NM5890110518**

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.



Michael W. Hazen, Vice-President
Sandia Corporation
Albuquerque, New Mexico
Co-Operator

20 May 2009
Date signed



Patty Wagner, Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Owner and Co-Operator

Date signed



Figure 1

Aerial photograph of the Thermal Treatment Unit showing locations of soil samples collected March 16, 2009. The locations are labeled with Sandia's sample numbers.



Figure 2

Location of soil sample TTU-1 on March 16, 2009. After the photograph was taken, the sample was collected from the area around the base of the flag.



Figure 3

Location of soil sample TTU-2 on March 16, 2009. After the photograph was taken, the sample was collected from the area around the base of the flag.



Figure 4

Location of soil samples TTU-3 (top) and TTU-1 (bottom) on March 16, 2009. After the photograph was taken, the samples were collected from the area around base of each flag.



Figure 5

Location of soil sample TTU-4 on March 16, 2009. After the photograph was taken, the sample was collected from the area around the base of the flag.

Table 1 Summary of Analytical Results
 Samples Collected March 16, 2009
 Sandia National Laboratories/New Mexico

SAMPLE NUMBER SAMPLE DESCRIPTION	TTU-1 soil	TTU-1 dup soil	TTU-2 soil	TTU-3 soil	TTU-4 soil	TTU-EB equipment blank, liquid	UNITS			ANALYTICAL METHOD ³
ANALYTE	CONCENTRATION ^{1,2}						soil	liquid		
Silver	40.8 J, MS3, RP2	170 J, MS3, RP2	25.2 J, MS3, RP2	6.65 J, MS3, RP2	32.2 J, MS3, RP2	ND (0.01) UJ, RP1	mg/kg	mg/L	3050B/ 6010B	
1,3,5- Trinitrobenzene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.0649) UJ, MS1	ug/kg	ug/L	8330	
2,4,6-Trinitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
2,4-Dinitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
2,6-Dinitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
2-Amino-4,6- dinitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
4-Amino-2,6- dinitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
HMX	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
Nitrobenzene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	0.237 R, V2, MS1	ug/kg	ug/L	8330	
PETN	ND (82.5)	ND (82.5)	ND (82.5)	ND (82.5)	ND (82.5)	ND (0.649) UJ, MS1	ug/kg	ug/L	8330	
RDX	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330	
Tetryl	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.487) UJ, MS1	ug/kg	ug/L	8330	
m-Dinitrobenzene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.0649) UJ, MS1	ug/kg	ug/L	8330	

Table 1 Summary of Analytical Results
(continued) Samples Collected March 16, 2009
Sandia National Laboratories/New Mexico

SAMPLE NUMBER SAMPLE DESCRIPTION	TTU-1 soil	TTU-1 dup soil	TTU-2 soil	TTU-3 soil	TTU-4 soil	TTU-EB equipment blank, liquid	UNITS soil	UNITS liquid	ANALYTICAL METHOD ³
ANALYTE	CONCENTRATION ^{1,2}								
m-Nitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.126) UJ, MS1	ug/kg	ug/L	8330
o-Nitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330
p-Nitrotoluene	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (0.162) UJ, MS1	ug/kg	ug/L	8330

Footnotes

- 1 ND = Analyte not detected, detection limit shown in parentheses
- 2 Data qualifiers:
J = Analyte detected, not all QC criteria fully satisfied
MS1 = Laboratory QC matrix spike sample not analyzed
MS3 = Laboratory QC matrix spike analyte(s) recovery failed low
R = Result not usable due to QC failure
RP1 = Laboratory QC replicate sample not analyzed due to insufficient sample volume
RP2 = Laboratory QC replicate relative percent difference failed
UJ = Analyte not detected, not all QC criteria fully satisfied
V2 = Laboratory QC confirmation relative percent difference exceeded criteria

- 3 Analytical methods from EPA SW-846 *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, Third Edition, as revised and updated

Enclosure A

Analytical Data

Soil Samples from TTU

March 16, 2009

Analysis Request/Chain of Custody 612145

Sandia National Laboratories

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Case Narrative

**CASE NARRATIVE
for
Sandia National Laboratories
ARCOC-612145
226257 and 226265
Case No. 1469.20.52**

April 21, 2009

Laboratory Identification:

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

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on March 17, 2009 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. The client was contacted and asked to verify the collection time for sample ID 087114-001. Please refer to the attached e-mail for further details.

Items of Note

The client requested to be notified if any samples under this ARCO had High Explosives detected in them. The lab notified the client of a result that was PX qualified and the client informed the lab that they did not require a reanalysis. The client requested a copy of the results several days before the due date. After reviewing the preliminary results that were sent, the client notified the lab that PETN needed to be reported in addition to the standard Explosives list. The data was reported late in order for the lab to reprocess the data so that PETN could be reported. Please refer to the attached e-mails for further details. This workorder was requested on a standard turnaround time of 30 days.

QC Issues

Any QC issues will be noted in the technical case narratives.

Sample Identification

The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
226257001	087114-001
226257002	087114-002
226257003	087115-001
226257004	087115-002
226257005	087116-001
226257006	087116-002
226257007	087117-001
226257008	087117-002
226257009	087118-001
226257010	087118-002
226265001	087120-001
226265002	087120-002

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: HPLC Explosive and Metals.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.



Edith Kent

Project Manager

Chain of Custody and Supporting Documentation

CONTRACT LABORATORY ANALYSIS REQUEST AND CHAIN OF CUSTODY

Page 1 of 2

Internal Lab

SMO Use

Batch No.

N/A

ARCO

612145

Dept. No./Mail Stop:	4133 MS 1042	Date Samples Shipped:	3/16/09	Project/Task No.:	1469/20.52	Send Preliminary/Copy Report to:	
Project/Task Manager:	Anita Reiser	Carrier/Waybill No.:		SMO Authorization:	500 BOWLO ORDER	Contract #	691436
Project Name:	Soil Sampling at TTU	Lab Contact:	E. Kent	Validation Required	☐	Released by COC No.:	226257
Record Center Code:		Lab Destination:	GEL	Bill to:	Sandia National Laboratories (Accounts Payable);		
Service Order No.:	CF 0208-09	SMO Contact/Phone:	W. Palencia 844-3132	P.O. Box 5800, MS-0154; Albuquerque, NM 87185-0154			

Location	Building	Room	Sample No.-Fraction	Sample Location Detail	Beginning Depth (ft)	Non GW & WW		Date/Time Collected	Sample Matrix	Container Type	Vol	Preservative	Collect Method	Sample Type	F (filtered) NF (non)	Parameter & Method Requested	Lab Sample Id
						Easting (X)	Northing (Y)										
087114-001			TTU1-S		N/A			3/16/09 6:34	S	G	250mL	None	C	SA	NF	Silver (6010)	001
087114-002			TTU1-S		N/A			3/16/09 ↓	S	G	250mL	None	C	SA	NF	He (8330)	002
087115-001			TTU2-S		N/A			3/16/09 6:33	S	G	250mL	None	C	SA	NF	Silver (6010)	003
087115-002			TTU2-S		N/A			3/16/09 ↓	S	G	250mL	None	C	SA	NF	He (8330)	004
087116-001			TTU3-S		N/A			3/16/09 6:12	S	G	250mL	None	C	SA	NF	Silver (6010)	005
087116-002			TTU3-S		N/A			3/16/09 ↓	S	G	250mL	None	C	SA	NF	He (8330)	006
087117-001			TTU4-S		N/A			3/16/09 6:19	S	G	250mL	None	C	SA	NF	Silver (6010)	007
087117-002			TTU4-S		N/A			3/16/09 ↓	S	G	250mL	None	C	SA	NF	He (8330)	008
087118-001			TTU / -S-DUP		N/A			3/16/09 6:53	S	G	250mL	None	C	DU	NF	Silver (6010)	009
087118-002			TTU / -S-DUP		N/A			3/16/09 ↓	S	G	250mL	None	C	DU	NF	He (8330)	010

RMMA ☐ Yes ☒ No ☐ Return to Client ☐ Disposal by lab Turnaround Time ☐ 7 Day * ☒ 15 Day * ☐ 30 Day Return Samples By: ☐ Negotiated TAT	Sample Tracking Date Entered: 3/16/09 Entered by:	SMO Use Date Entered: 3/16/09 Entered by:	Special Instructions/QC Requirements: EDD ☐ Yes ☒ No Level D Package ☐ Yes ☒ No	Abnormal Conditions on Receipt
	QC Inits.	*Send/e-mail report to:	*Please list as separate report.	
	Name: Danielle M. Nieto Signature: <i>[Signature]</i> Init: <i>[Init]</i> Company/Organization/Phone/Cellular: SNL/4133/845-7706	Lab Use		
	Sample Team Members			

1. Relinquished by	Org. 4133	Date 3/16/09	Time 1000	3. Relinquished by	Org.	Date	Time
1. Received by	Org. 4133	Date 3/16/09	Time 1000	3. Received by	Org.	Date	Time
2. Relinquished by	Org. 4133	Date 3/16/09	Time 1215	4. Relinquished by	Org.	Date	Time
2. Received by	Org. 4133	Date 3-17-09	Time 0930	4. Received by	Org.	Date	Time

*Prior confirmation with SMO required for 7 and 15 day TAT

[illegible]



SAMPLE RECEIPT & REVIEW FORM

Client: <u>SANDIA</u>			SDG/ARCOC/Work Order: <u>612145</u>		
Received By: <u>M/K</u>			Date Received: <u>3-17-09</u>		
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.		
COC/Samples marked as radioactive?		✓	Maximum Counts Observed*: <u>cpm 40</u>		
Classified Radioactive II or III by RSO?		✓			
COC/Samples marked containing PCBs?		✓			
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:		
Samples identified as Foreign Soil?		✓			

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?	✓			ice bags <u>blue ice</u> Preservation Method: dry ice none other (describe) <u>3c</u>
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: <u>087114-001</u> TIME ON CHAIN <u>0846</u> TIME ON JAR <u>0847</u>
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

FX 9859 3914 7617 3c
 " " 7628 3c

PM (or PMA) review: Initials

pm

Date

3/17/09

Subject: [Fwd: Re: ARCO-612145, Soil Sampling at TTU - Condition on Receipt - Please Advise]

From: Edie Kent <emk@gel.com>

Date: Tue, 17 Mar 2009 16:00:29 -0400

To: Heather Shaffer <heather.shaffer@gel.com>

--

Edith M. Kent
Project Manager
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC (USA) 29407
Direct: 843.769.7385 x4453
Main: 843.556.8171
Fax: 843.766.1178
E-mail: emk@gel.com
Web: www.gel.com

Subject: RE: ARCO-612145, Soil Sampling at TTU - Condition on Receipt - Please Advise

From: "Reiser, Anita" <asreise@sandia.gov>

Date: Tue, 17 Mar 2009 13:44:34 -0600

To: "Herrera, Lorraine R" <lrherre@sandia.gov>, "Edie Kent" <emk@gel.com>

CC: "Puissant, Pamela M" <pmpuiss@sandia.gov>, "Kavanaugh, Rita" <rkavana@sandia.gov>, "Palencia, Wendy J" <wjpalen@sandia.gov>

Edie,

0847 is the correct time for that sample. Thanks.
Anita Reiser

-----Original Message-----

From: Herrera, Lorraine R
Sent: Tuesday, March 17, 2009 1:37 PM
To: Reiser, Anita
Subject: FW: ARCO-612145, Soil Sampling at TTU - Condition on Receipt - Please Advise

Anita,
I am not sure if you received this or not. Please refer to the message below from GEL.
Lorraine

-----Original Message-----

From: Edie Kent [<mailto:emk@gel.com>]
Sent: Tuesday, March 17, 2009 9:31 AM
To: Puissant, Pamela M; Palencia, Wendy J; Herrera, Lorraine R; Kavanaugh, Rita; team.kent
Subject: ARCO-612145, Soil Sampling at TTU - Condition on Receipt - Please Advise

The sample collection time on the chain of custody for sample 087114-001 is 0846 and the time of collection on the sample container is 0847.
Please verify the time of collection.

Thanks, Edie

--

Edith M. Kent
Project Manager
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC (USA) 29407
Direct: 843.769.7385 x4453
Main: 843.556.8171
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E-mail: emk@gel.com
Web: www.gel.com

Re: ARCO-612145, Soil Sampling at TTU - Condition on Receipt - Please Advise	Content-Type: message/rfc822 Content-Encoding: 7bit
---	--

Subject: [Fwd: Re: FW: TTU Soil Sampling]
From: Edie Kent <emk@gel.com>
Date: Tue, 17 Mar 2009 15:56:16 -0400
To: Heather Shaffer <heather.shaffer@gel.com>

--

Edith M. Kent
Project Manager
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC (USA) 29407
Direct: 843.769.7385 x4453
Main: 843.556.8171
Fax: 843.766.1178
E-mail: emk@gel.com
Web: www.gel.com

Subject: RE: FW: TTU Soil Sampling
From: "Reiser, Anita" <asreise@sandia.gov>
Date: Tue, 17 Mar 2009 13:20:07 -0600
To: "Edie Kent" <emk@gel.com>, "Herrera, Lorraine R" <lrherre@sandia.gov>
CC: "Heather Shaffer" <heather.shaffer@gel.com>, "Puissant, Pamela M" <pmpuiss@sandia.gov>

Edie and Lorraine,

I just realized that I forgot the note on ARCOG 612145. The sample numbers are
087114-002
087115-002
087116-002
087117-002
087118-002
087120-002

Please notify us if there are any HE detects on these samples. We will probably want to re-analyze these by 8321A (modified)

Thanks
Anita Reiser

-----Original Message-----

From: Edie Kent [<mailto:emk@gel.com>]
Sent: Monday, March 09, 2009 1:22 PM
To: Herrera, Lorraine R
Cc: Heather Shaffer; Reiser, Anita; Puissant, Pamela M
Subject: Re: FW: TTU Soil Sampling

Lorraine:
Will there be a note on the chains?

Edie

Herrera, Lorraine R wrote:

Edie,
I neglected to note on the bottle order that if there are any HE detects, please notify us. We will probably want to re-analyze these samples by LC/MS/MS if there are any issues.

Thanks,
Lorraine

-----Original Message-----

From: Herrera, Lorraine R
Sent: Monday, March 09, 2009 10:06 AM
To: 'Edie Kent'; Heather Shaffer; Perry, Doug E; Reiser, Anita; Nieto, Danielle M
Cc: Puissant, Pamela M
Subject: TTU Soil Sampling

--

Edith M. Kent
Project Manager
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC (USA) 29407
Direct: 843.769.7385 x4453
Main: 843.556.8171
Fax: 843.766.1178
E-mail: emk@gel.com
Web: www.gel.com

Re: FW: TTU Soil Sampling

Content-Type: message/rfc822
Content-Encoding: 7bit

Subject: RE: SDG 226257, ARCOC-612145, Soil Sampling at TPU - PETN - Please Advise
From: "Puissant, Pamela M" <pmpuiss@sandia.gov>
Date: Fri, 17 Apr 2009 09:18:00 -0600
To: "Edie Kent" <emk@gel.com>

Go ahead and do it also.
Pam

-----Original Message-----

From: Edie Kent [<mailto:emk@gel.com>]
Sent: Friday, April 17, 2009 9:10 AM
To: Puissant, Pamela M
Cc: Palencia, Wendy J; Herrera, Lorraine R; Kavanaugh, Rita; team.kent; Anna White
Subject: Re: SDG 226257, ARCOC-612145, Soil Sampling at TPU - PETN - Please Advise

Pam:
Michael wasn't sure. He said sometime within this next week he should be able to get the data reprocessed. Do you also need the equipment blank reprocessed?

Edie

Puissant, Pamela M wrote:

Thanks Edie. This looks good to me. How long do you think this will take?
Pam

-----Original Message-----

From: Edie Kent [<mailto:emk@gel.com>]
Sent: Friday, April 17, 2009 6:07 AM
To: Puissant, Pamela M; Palencia, Wendy J; Herrera, Lorraine R; Kavanaugh, Rita; team.kent
Cc: Anna White
Subject: SDG 226257, ARCOC-612145, Soil Sampling at TPU - PETN - Please Advise

Pam:

As we discussed yesterday afternoon, GEL can reprocess the Explosives data to determine if there is reportable PETN. We will not charge you for the reprocessing of the data. However, if we have to reanalyze any of the samples in order to have reportable PETN, there would be a charge of \$100 per data package. Before we reanalyze any samples, I will contact you to see if you want us to proceed further. Please let me know if you need us to reprocess the water data as well or just the soil samples. At present, I am only instructing the lab to reprocess the soil data.

We will wait to send the data package for this SDG until after we have completed this.

Also, as we discussed, for future Explosives samples, we will add PETN to the reporting list. The price per sample for the standard Explosives list plus PETN is \$168.75 for liquid samples and \$131.25 for solid samples. Anna White will send a notification to your contracts department on this addition to the price list.

Edie

--

Edith M. Kent
Project Manager
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC (USA) 29407
Direct: 843.769.7385 x4453
Main: 843.556.8171
Fax: 843.766.1178
E-mail: emk@gel.com
Web: www.gel.com

--
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Main: 843.556.8171
Fax: 843.766.1178
E-mail: emk@gel.com
Web: www.gel.com

Data Package Qualifier Definitions

GEL Laboratories, LLC

Data Review Qualifier Flag Definitions

The Level II Certificate of Analysis contains the following headings:

Client Sample ID:	Sample Identification
Sample ID:	This is the laboratory identification number
Matrix:	Sample matrix
Collect Date:	Date of sample collection
Receive Date:	Date of sample receipt by the laboratory
Collector:	Party responsible for sample collection.

The detail on the Certificate includes the following:

Parameter:	Analyte or characteristic tested for in the sample
Qualifier:	Qualifier used for data interpretation**
Result:	Final result of each parameter. ND for non-radiochemistry (RAD) tests when result is less than the effective MDL
DL:	Effective Method Detection Limit for non-RAD
Lc:	Actual critical level as defined in the contract for RAD
RL:	Effective Practical Quantitation Limit (PQL) for non-RAD
MDA:	MDA (as defined in the contract for RAD)
Units:	Units of final result
DF:	Dilution factor
Analyst:	Initials of analyst who performed the test
Date:	Date of analysis
Time:	Time of analysis
Batch:	Analytical batch in which the sample was analyzed
Method:	Analytical method used for the analysis of the sample. Identified on the report numerically with a corresponding table.
Surrogate Recovery:	Provided for organics analysis only. Surrogate compound identified.
Test:	Analytical test associated with surrogate compound.
Percent%:	Surrogate percent recovery
Acceptable Limits:	Limits established for surrogate recoveries based upon the method requirements.

The QC Summary Report contains the following headings:

Parmname:	Analyte or characteristic tested for in the QC sample
NOM:	Nominal concentration of the spiking compound
Sample:	Amount of compound found in the sample associated with the QC sample.
Qual:	Qualifier used for data interpretation**
QC:	Amount of compound found in the QC sample.

Units:	Units of final result
RPD%:	Relative percent difference between LCS/LCS dup, MS/MSD, and Sample/Sample duplicate for non-RAD
RER:	for RAD relative error ratio (RER) between Sample/Sample duplicate
REC%:	Recovery for the control samples
Range:	Acceptance limits for control samples. May not be applicable for certain matrices such as TCLP.
Analyst:	Initials of analyst who performed the test
Date:	Date of analysis
Time:	Time of analysis

The calculations for Percent Recovery and Relative Percent Recovery are given below. These calculations are taken from EPA data validation guidelines.

Percent Recovery	$\left(\frac{\text{value of spiked sample} - \text{value of unspiked sample}}{\text{Value of added spike}} \right) \times 100$
------------------	---

Value of added spike = “NOM” on the QC Summary Report

Value of spiked sample = “QC”

Value of unspiked = “Sample”

Relative Percent Difference	$\left(\frac{(X_1 - X_2)}{(X_1 + X_2) / 2} \right) \times 100$
-----------------------------	---

Where:

x_1 = Percent Recovery from spike

x_2 = Percent Recovery from spike duplicate

Values reported for RPD are calculated by LIMS from raw instrument values, preparation factors and dilutions. The values are then rounded and reported on the Quality Control Summary Report. Because of this, verification of the calculated result using the data presented on the report may give slightly different values.

Verification of the percent recovery calculation for PS and PSD using the data from the QC Summary Report is not possible for QC samples that have been diluted. The data can be obtained by contacting your project manager.

A percent recovery value of “N/A” indicates that the concentration of the original sample was greater than four times the amount spiked into the sample and is considered not applicable. This rule is referenced in EPA Data Validation Guidelines. It is footnoted on the very last page of the Quality Control Summary Report.

The calculation for relative error ratio is found in the DOE-AL Statement of Work.

Types of QC samples that may be found on the QC Summary Report are:

Blank:	Results of the blank analysis for the sample batch
Dup:	Duplicate analysis of sample
LCS:	Lab control sample
MS:	Matrix spike
MSD:	Matrix spike duplicate
PS:	Post spike (spike that does not require prep or spiked after prep)
PSD:	Post spike duplicate
TS:	TCLP spike
SDILT:	Serial dilution (metals analysis only)

The matrix spike, matrix spike duplicate, and sample duplicate will be reported on the QC Summary Report only if the sample chosen for the matrix spike, matrix spike duplicate, or sample duplicate is a Sandia sample. It will only be reported in the EDD if part of the SDG. However, this QC is a Sandia contract requirement and the acceptability of the QC for the batch in which the Sandia samples were analyzed will be addressed in the technical case narratives whether or not they are a part of the QC Summary.

The following are definitions of reporting limits used at General Engineering Laboratories:

DL Effective Detection Limit: The minimum level of an analyte that can be determined (identified not quantified) with 99% confidence. The values are normally achieved by preparing and analyzing seven aliquots of laboratory water spiked 1 to 5 times the estimated MDL, taking the standard deviation and multiplying it against the one-tailed t-statistic at 99%. This computed value is then verified for reasonableness by repeating the study using the concentration found in the initial study, calculating an F-ratio, and computing the final limit. Sample specific preparation and dilution factors are applied to these limits when they are reported.

The detection limit is the minimum concentration of a substance that can be identified, measured, and reported with 99% confidence that the analyte concentration is above zero. It answers the question "Is It Present".

QL Quantitation Limit: The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The QL is generally 5 to 10 times the MDL. However, it

may be nominally chosen within these guidelines to simplify data reporting. For many analytes the QL analyte concentration is selected as the lowest non-zero standard in the calibration curve.

Sample QL's are highly matrix-dependent. Sample specific preparation and dilution factors are applied to these limits when they are reported

The QL is always $\geq$ DL.

RL Reporting Limit: Same as the QL except where driven by contract or client specifications. If the sample specific preparation and dilution factors cause the QL to be elevated above the RL, then the QL is used as the RL.

The quantitation limit is the lowest level at which a chemical may be accurately and reproducibly quantitated. It answers the question "HOW MUCH IS PRESENT".

NOTE: Per contract specifications Sandia has requested that for radiochemistry samples only the actual critical level be reported on the EDD where the MDL would normally be reported and that the MDA be reported where the RL would normally be reported.

Interpretation of RESULT column on the Certificate of Analysis:

If the final concentration in the sample was found to be equal to or above the RL, then the value is reported without a qualifier; for RAD samples if the final concentration in the sample was found to be above the MDA, then the value is reported without a qualifier.

If the final concentration in the sample was found to be below the RL but equal to or above the effective DL, then the value reported is qualified with a "J"; there are no "J" qualifiers reported for RAD data.

If the final concentration in the sample was found to be below the effective DL, the value is reported as "ND" and is qualified with a "U"; for RAD samples if the final concentration in the sample was found to be below the MDA, the value reported is qualified with a "U".

If the concentration of the compound is detected in the blank above the effective MDL, the sample result is qualified with a "B". There are no "B" qualifiers reported for RAD data.

Laboratory Certifications

List of current GEL Certifications as of 17 April 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

HPLC SAMPLE AND QC SUMMARY DATA

GEL LABORATORIES LLC

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

Certificate of Analysis Report for

SNLS003 Sandia National Labs (691436)

Client SDG: 226257 GEL Work Order: 226257

The Qualifiers in this report are defined as follows:

* Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

** Indicates analyte is a surrogate compound.

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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

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

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

Heather M. Name 4/29/04

Reviewed by

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 20, 2009

Client Sample ID: 087114-002
Sample ID: 226257002
Matrix: SOIL
Collect Date: 16-MAR-09 08:46
Receive Date: 17-MAR-09
Collector: Client
Project: SNLS00207
Client ID: SNLS003
Client Desc.: TTU1-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC Explosives											
<i>8330 EXPLO. Std list Soil "As Received"</i>											
1,3,5-Trinitrobenzene	U	ND	50.0	150	ug/kg	2	CWW	03/23/09	1732	851476	1
2,4,6-Trinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,4-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,6-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2-Amino-4,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
4-Amino-2,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
HMX	U	ND	50.0	150	ug/kg	2					
Nitrobenzene	U	ND	50.0	150	ug/kg	2					
PETN	U	ND	82.5	500	ug/kg	2					
RDX	U	ND	50.0	150	ug/kg	2					
Tetryl	U	ND	50.0	150	ug/kg	2					
m-Dinitrobenzene	U	ND	50.0	150	ug/kg	2					
m-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
o-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
p-Nitrotoluene	U	ND	50.0	150	ug/kg	2					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in soil	JXA2	03/19/09	0942	851475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8330	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
3,4-Dinitrotoluene	8330 EXPLO. Std list Soil "As Received"	2520 ug/kg	2500	101	(82%-123%)

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 20, 2009

Client Sample ID: 087115-002
Sample ID: 226257004
Matrix: SOIL
Collect Date: 16-MAR-09 09:03
Receive Date: 17-MAR-09
Collector: Client
Project: SNLS00207
Client ID: SNLS003
Client Desc.: TTU2-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC Explosives											
<i>8330 EXPLO. Std list Soil "As Received"</i>											
1,3,5-Trinitrobenzene	U	ND	50.0	150	ug/kg	2	CWW	03/23/09	1924	851476	1
2,4,6-Trinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,4-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,6-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2-Amino-4,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
4-Amino-2,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
HMX	U	ND	50.0	150	ug/kg	2					
Nitrobenzene	U	ND	50.0	150	ug/kg	2					
PETN	U	ND	82.5	500	ug/kg	2					
RDX	U	ND	50.0	150	ug/kg	2					
Tetryl	U	ND	50.0	150	ug/kg	2					
m-Dinitrobenzene	U	ND	50.0	150	ug/kg	2					
m-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
o-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
p-Nitrotoluene	U	ND	50.0	150	ug/kg	2					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in soil	JXA2	03/19/09	0942	851475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8330	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
3,4-Dinitrotoluene	8330 EXPLO. Std list Soil "As Received"	2560 ug/kg	2500	102	(82%-123%)

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 20, 2009

Client Sample ID: 087116-002
Sample ID: 226257006
Matrix: SOIL
Collect Date: 16-MAR-09 09:12
Receive Date: 17-MAR-09
Collector: Client
Project: SNLS00207
Client ID: SNLS003
Client Desc.: TTU3-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC Explosives											
<i>8330 EXPLO. Std list Soil "As Received"</i>											
1,3,5-Trinitrobenzene	U	ND	50.0	150	ug/kg	2	CWW	03/23/09	2001	851476	1
2,4,6-Trinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,4-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,6-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2-Amino-4,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
4-Amino-2,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
HMX	U	ND	50.0	150	ug/kg	2					
Nitrobenzene	U	ND	50.0	150	ug/kg	2					
PETN	U	ND	82.5	500	ug/kg	2					
RDX	U	ND	50.0	150	ug/kg	2					
Tetryl	U	ND	50.0	150	ug/kg	2					
m-Dinitrobenzene	U	ND	50.0	150	ug/kg	2					
m-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
o-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
p-Nitrotoluene	U	ND	50.0	150	ug/kg	2					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in soil	JXA2	03/19/09	0942	851475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8330	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
3,4-Dinitrotoluene	8330 EXPLO. Std list Soil "As Received"	2640 ug/kg	2500	106	(82%-123%)

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 20, 2009

Client Sample ID: 087117-002
Sample ID: 226257008
Matrix: SOIL
Collect Date: 16-MAR-09 09:19
Receive Date: 17-MAR-09
Collector: Client
Project: SNLS00207
Client ID: SNLS003
Client Desc.: TTU4-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC Explosives											
<i>8330 EXPLO. Std list Soil "As Received"</i>											
1,3,5-Trinitrobenzene	U	ND	50.0	150	ug/kg	2	CWW	03/23/09	2039	851476	1
2,4,6-Trinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,4-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,6-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2-Amino-4,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
4-Amino-2,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
HMX	U	ND	50.0	150	ug/kg	2					
Nitrobenzene	U	ND	50.0	150	ug/kg	2					
PETN	U	ND	82.5	500	ug/kg	2					
RDX	U	ND	50.0	150	ug/kg	2					
Tetryl	U	ND	50.0	150	ug/kg	2					
m-Dinitrobenzene	U	ND	50.0	150	ug/kg	2					
m-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
o-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
p-Nitrotoluene	U	ND	50.0	150	ug/kg	2					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in soil	JXA2	03/19/09	0942	851475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8330	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
3,4-Dinitrotoluene	8330 EXPLO. Std list Soil "As Received"	2670 ug/kg	2500	107	(82%-123%)

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 20, 2009

Client Sample ID: 087118-002
Sample ID: 226257010
Matrix: SOIL
Collect Date: 16-MAR-09 08:53
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU1-S-DUP

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC Explosives											
<i>8330 EXPLO. Std list Soil "As Received"</i>											
1,3,5-Trinitrobenzene	U	ND	50.0	150	ug/kg	2	CWW	03/23/09	2116	851476	1
2,4,6-Trinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,4-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2,6-Dinitrotoluene	U	ND	50.0	150	ug/kg	2					
2-Amino-4,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
4-Amino-2,6-dinitrotoluene	U	ND	50.0	150	ug/kg	2					
HMX	U	ND	50.0	150	ug/kg	2					
Nitrobenzene	U	ND	50.0	150	ug/kg	2					
PETN	U	ND	82.5	500	ug/kg	2					
RDX	U	ND	50.0	150	ug/kg	2					
Tetryl	U	ND	50.0	150	ug/kg	2					
m-Dinitrobenzene	U	ND	50.0	150	ug/kg	2					
m-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
o-Nitrotoluene	U	ND	50.0	150	ug/kg	2					
p-Nitrotoluene	U	ND	50.0	150	ug/kg	2					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in soil	JXA2	03/19/09	0942	851475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8330	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
3,4-Dinitrotoluene	8330 EXPLO. Std list Soil "As Received"	2680 ug/kg	2500	107	(82%-123%)

GEL LABORATORIES LLC

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QC Summary

Report Date: April 20, 2009

Page 1 of 3

Sandia National Laboratories
MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico

Contact: Ms. Pamela M. Puissant

Workorder: 226257

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	T
HPLC-Explosives											
Batch	851476										
QC1201800733	LCS										
1,3,5-Trinitrobenzene	5000			5100	ug/kg		102	(80%–120%)	CWW	03/23/09	
2,4,6-Trinitrotoluene	5000			5110	ug/kg		102	(80%–121%)			
2,4-Dinitrotoluene	5000			4860	ug/kg		97.2	(80%–120%)			
2,6-Dinitrotoluene	5000			5120	ug/kg		102	(80%–120%)			
2-Amino-4,6-dinitrotoluene	5000			4540	ug/kg		90.9	(80%–120%)			
4-Amino-2,6-dinitrotoluene	5000			4730	ug/kg		94.5	(80%–120%)			
HMX	5000			4880	ug/kg		97.6	(80%–120%)			
Nitrobenzene	5000			5160	ug/kg		103	(80%–120%)			
PETN	5000			4800	ug/kg		95.9	(80%–126%)			
RDX	5000			5140	ug/kg		103	(80%–122%)			
Tetryl	5000			4460	ug/kg		89.2	(65%–115%)			
m-Dinitrobenzene	5000			5150	ug/kg		103	(80%–120%)			
m-Nitrotoluene	5000			5070	ug/kg		101	(80%–122%)			
o-Nitrotoluene	5000			5110	ug/kg		102	(80%–120%)			
p-Nitrotoluene	5000			5170	ug/kg		103	(80%–120%)			
**3,4-Dinitrotoluene	2500			2680	ug/kg		107	(82%–123%)			
QC1201800732	MB										
1,3,5-Trinitrobenzene			U	ND	ug/kg					03/23/09	
2,4,6-Trinitrotoluene			U	ND	ug/kg						
2,4-Dinitrotoluene			U	ND	ug/kg						
2,6-Dinitrotoluene			U	ND	ug/kg						
2-Amino-4,6-dinitrotoluene			U	ND	ug/kg						
4-Amino-2,6-dinitrotoluene			U	ND	ug/kg						
HMX			U	ND	ug/kg						
Nitrobenzene			U	ND	ug/kg						
PETN			U	ND	ug/kg						
RDX			U	ND	ug/kg						
Tetryl			U	ND	ug/kg						
m-Dinitrobenzene			U	ND	ug/kg						
m-Nitrotoluene			U	ND	ug/kg						
o-Nitrotoluene			U	ND	ug/kg						
p-Nitrotoluene			U	ND	ug/kg						
**3,4-Dinitrotoluene	2500			2540	ug/kg		101	(82%–123%)			
QC1201800734	226257002	MS									
1,3,5-Trinitrobenzene	5000	U	ND	5170	ug/kg		103	(80%–120%)		03/23/09	
2,4,6-Trinitrotoluene	5000	U	ND	5100	ug/kg		102	(80%–123%)			
2,4-Dinitrotoluene	5000	U	ND	4790	ug/kg		95.7	(80%–120%)			

GEL LABORATORIES LLC

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QC Summary

Workorder: 226257

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	T
HPLC-Explosives											
Batch	851476										
2,6-Dinitrotoluene	5000	U	ND	5090	ug/kg		102	(80%–120%)			
2-Amino-4,6-dinitrotoluene	5000	U	ND	4600	ug/kg		92.1	(80%–120%)	CWW	03/23/09	
4-Amino-2,6-dinitrotoluene	5000	U	ND	4930	ug/kg		98.5	(80%–120%)			
HMX	5000	U	ND	4790	ug/kg		95.9	(80%–120%)			
Nitrobenzene	5000	U	ND	5130	ug/kg		103	(80%–120%)			
PETN	5000	U	ND	5070	ug/kg		101	(80%–125%)			
RDX	5000	U	ND	5050	ug/kg		101	(80%–120%)			
Tetryl	5000	U	ND	3790	ug/kg		75.7	(59%–129%)			
m-Dinitrobenzene	5000	U	ND	5230	ug/kg		105	(80%–120%)			
m-Nitrotoluene	5000	U	ND	5630	ug/kg		113	(79%–124%)			
o-Nitrotoluene	5000	U	ND	5120	ug/kg		102	(80%–120%)			
p-Nitrotoluene	5000	U	ND	5080	ug/kg		102	(80%–120%)			
**3,4-Dinitrotoluene	2500		2520	2570	ug/kg		103	(82%–123%)			
QC1201800735 226257002 MSD											
1,3,5-Trinitrobenzene	5000	U	ND	5170	ug/kg	.0153	103	(0%–30%)		03/23/09	
2,4,6-Trinitrotoluene	5000	U	ND	5140	ug/kg	.672	103	(0%–30%)			
2,4-Dinitrotoluene	5000	U	ND	4810	ug/kg	.562	96.2	(0%–30%)			
2,6-Dinitrotoluene	5000	U	ND	5100	ug/kg	.207	102	(0%–30%)			
2-Amino-4,6-dinitrotoluene	5000	U	ND	4620	ug/kg	.29	92.3	(0%–30%)			
4-Amino-2,6-dinitrotoluene	5000	U	ND	4700	ug/kg	4.61	94.1	(0%–30%)			
HMX	5000	U	ND	4870	ug/kg	1.59	97.4	(0%–30%)			
Nitrobenzene	5000	U	ND	5160	ug/kg	.649	103	(0%–30%)			
PETN	5000	U	ND	5210	ug/kg	2.83	104	(0%–30%)			
RDX	5000	U	ND	4850	ug/kg	4.1	97	(0%–30%)			
Tetryl	5000	U	ND	4690	ug/kg	21.3	93.8	(0%–30%)			
m-Dinitrobenzene	5000	U	ND	5180	ug/kg	1.13	104	(0%–30%)			
m-Nitrotoluene	5000	U	ND	5180	ug/kg	8.4	104	(0%–30%)			
o-Nitrotoluene	5000	U	ND	5120	ug/kg	.11	102	(0%–30%)			
p-Nitrotoluene	5000	U	ND	5200	ug/kg	2.21	104	(0%–30%)			
**3,4-Dinitrotoluene	2500		2520	2620	ug/kg		105	(82%–123%)			

Notes:

RER is calculated at the 95% confidence level (2-sigma).

The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
- ** Indicates analyte is a surrogate compound.
- B The analyte was found in the blank above the effective MDL.
- H Analytical holding time was exceeded
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL.

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QC Summary

Workorder: 226257

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	T
		For radiochemical analytes the result is less than the Decision Level									
X		Presumptive evidence that the analyte is not present. Please see narrative for further information.									
X		Presumptive evidence that the analyte is not present. Please see narrative for further information.									
Z		The percent difference is greater than 70%.									
d		The 2:1 depletion requirement was not met for this sample									
h		Prep holding time 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.

GEL LABORATORIES LLC

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Certificate of Analysis Report for

SNLS003 Sandia National Labs (691436)

Client SDG: 226257-1 GEL Work Order: 226265

The Qualifiers in this report are defined as follows:

* Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

** Indicates analyte is a surrogate compound.

J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL

P The response between the confirmation column and the primary column is >40%D

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

X Presumptive evidence that the analyte is not present. Please see narrative for further information.

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

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

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

Edith Kent 04/20/09

Reviewed by

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 20, 2009

Client Sample ID: 087120-002
Sample ID: 226265002
Matrix: AQUEOUS
Collect Date: 16-MAR-09 09:30
Receive Date: 17-MAR-09
Collector: Client
Project: SNLS00207
Client ID: SNLS003
Client Desc.: TTU-EB1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC Explosives											
<i>8330 EXPLO. Std list Liquid "As Received"</i>											
1,3,5-Trinitrobenzene	U	ND	0.0649	0.325	ug/L	2	CWW	03/23/09	1425	851503	1
2,4,6-Trinitrotoluene	U	ND	0.162	0.487	ug/L	2					
2,4-Dinitrotoluene	U	ND	0.162	0.487	ug/L	2					
2,6-Dinitrotoluene	U	ND	0.162	0.487	ug/L	2					
2-Amino-4,6-dinitrotoluene	U	ND	0.162	0.487	ug/L	2					
4-Amino-2,6-dinitrotoluene	U	ND	0.162	0.487	ug/L	2					
HMX	U	ND	0.162	0.487	ug/L	2					
Nitrobenzene	JPX	0.237	0.0649	0.325	ug/L	2					
PETN	U	ND	0.649	1.95	ug/L	2					
RDX	U	ND	0.162	0.487	ug/L	2					
Tetryl	U	ND	0.487	1.46	ug/L	2					
m-Dinitrobenzene	U	ND	0.0649	0.325	ug/L	2					
m-Nitrotoluene	U	ND	0.126	0.325	ug/L	2					
o-Nitrotoluene	U	ND	0.162	0.487	ug/L	2					
p-Nitrotoluene	U	ND	0.162	0.487	ug/L	2					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 Method 3535	8330 Explosives Prep by SPE	JXA2	03/20/09	0804	851501

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3535/8330	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
3,4-Dinitrotoluene	8330 EXPLO. Std list Liquid "As Received"	3.34 ug/L	3.25	103	(77%-120%)

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QC Summary

Report Date: April 20, 2009

Page 1 of 2

Sandia National Laboratories
MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico

Contact: Ms. Pamela M. Puissant

Workorder: 226265

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	T
HPLC-Explosives											
Batch	851503										
QC1201800792	LCS										
1,3,5-Trinitrobenzene	6.49			6.12	ug/L		94.3	(80%-120%)	CWW	03/23/09	
2,4,6-Trinitrotoluene	6.49			6.15	ug/L		94.8	(80%-120%)			
2,4-Dinitrotoluene	6.49			5.51	ug/L		84.9	(80%-120%)			
2,6-Dinitrotoluene	6.49			6.03	ug/L		92.9	(80%-120%)			
2-Amino-4,6-dinitrotoluene	6.49			5.44	ug/L		83.8	(78%-120%)			
4-Amino-2,6-dinitrotoluene	6.49			5.30	ug/L		81.6	(77%-120%)			
HMX	6.49			5.68	ug/L		87.5	(80%-120%)			
Nitrobenzene	6.49			5.83	ug/L		89.7	(80%-120%)			
PETN	6.49			6.37	ug/L		98.1	(80%-122%)			
RDX	6.49			6.11	ug/L		94	(80%-120%)			
Tetryl	6.49			5.74	ug/L		88.4	(73%-120%)			
m-Dinitrobenzene	6.49			6.08	ug/L		93.7	(80%-120%)			
m-Nitrotoluene	6.49			5.65	ug/L		87	(73%-120%)			
o-Nitrotoluene	6.49			5.63	ug/L		86.7	(75%-120%)			
p-Nitrotoluene	6.49			6.02	ug/L		92.8	(77%-120%)			
**3,4-Dinitrotoluene	3.25			3.36	ug/L		104	(77%-120%)			
QC1201800793	LCSD										
1,3,5-Trinitrobenzene	6.49			6.26	ug/L	2.15	96.4	(0%-20%)		03/23/09	
2,4,6-Trinitrotoluene	6.49			6.29	ug/L	2.16	96.8	(0%-20%)			
2,4-Dinitrotoluene	6.49			5.90	ug/L	6.76	90.8	(0%-20%)			
2,6-Dinitrotoluene	6.49			6.13	ug/L	1.5	94.3	(0%-20%)			
2-Amino-4,6-dinitrotoluene	6.49			5.56	ug/L	2.09	85.6	(0%-20%)			
4-Amino-2,6-dinitrotoluene	6.49			5.41	ug/L	1.96	83.2	(0%-20%)			
HMX	6.49			5.77	ug/L	1.48	88.9	(0%-20%)			
Nitrobenzene	6.49			5.93	ug/L	1.86	91.4	(0%-20%)			
PETN	6.49			6.40	ug/L	.477	98.6	(0%-20%)			
RDX	6.49			6.16	ug/L	.851	94.8	(0%-20%)			
Tetryl	6.49			5.87	ug/L	2.31	90.4	(0%-20%)			
m-Dinitrobenzene	6.49			6.23	ug/L	2.35	95.9	(0%-20%)			
m-Nitrotoluene	6.49			5.68	ug/L	.626	87.5	(0%-20%)			
o-Nitrotoluene	6.49			5.92	ug/L	4.9	91.1	(0%-20%)			
p-Nitrotoluene	6.49			6.14	ug/L	1.86	94.5	(0%-20%)			
**3,4-Dinitrotoluene	3.25			3.32	ug/L		102	(77%-120%)			
QC1201800791	MB										
1,3,5-Trinitrobenzene			U	ND	ug/L					03/23/09	
2,4,6-Trinitrotoluene			U	ND	ug/L						
2,4-Dinitrotoluene			U	ND	ug/L						

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QC Summary

Workorder: 226265

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	T
HPLC-Explosives											
Batch	851503										
2,6-Dinitrotoluene			U	ND	ug/L						
2-Amino-4,6-dinitrotoluene			U	ND	ug/L				CWW	03/23/09	
4-Amino-2,6-dinitrotoluene			U	ND	ug/L						
HMX			U	ND	ug/L						
Nitrobenzene			U	ND	ug/L						
PETN			U	ND	ug/L						
RDX			U	ND	ug/L						
Tetryl			U	ND	ug/L						
m-Dinitrobenzene			U	ND	ug/L						
m-Nitrotoluene			U	ND	ug/L						
o-Nitrotoluene			U	ND	ug/L						
p-Nitrotoluene			U	ND	ug/L						
**3,4-Dinitrotoluene	3.25			3.34	ug/L			103 (77%-120%)			

Notes:

RER is calculated at the 95% confidence level (2-sigma).

The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
- ** Indicates analyte is a surrogate compound.
- B The analyte was found in the blank above the effective MDL.
- H Analytical holding time was exceeded
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- Z The percent difference is greater than 70%.
- d The 2:1 depletion requirement was not met for this sample
- h Prep holding time 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.

METALS SAMPLE AND QC SUMMARY DATA

GEL LABORATORIES LLC

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

Certificate of Analysis Report for

SNLS003 Sandia National Labs (691436)

Client SDG: 226257 GEL Work Order: 226257

The Qualifiers in this report are defined as follows:

* Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.

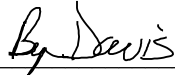
** Indicates analyte is a surrogate compound.

U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level

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

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

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



4-14-09

Reviewed by

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 8, 2009

Client Sample ID: 087114-001
Sample ID: 226257001
Matrix: SOIL
Collect Date: 16-MAR-09 08:47
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU1-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>3050/6010 Silver Federal "As Received"</i>											
Silver		40.8	0.0958	0.479	mg/kg	1	HSC	03/28/09	0420	851615	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3050B	846 3050BS PREP	CXS3	03/26/09	0802	851609

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3050B/6010B	

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 8, 2009

Client Sample ID: 087115-001
Sample ID: 226257003
Matrix: SOIL
Collect Date: 16-MAR-09 09:03
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU2-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>3050/6010 Silver Federal "As Received"</i>											
Silver		25.2	0.0969	0.484	mg/kg	1	HSC	03/28/09	0513	851615	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3050B	846 3050BS PREP	CXS3	03/26/09	0802	851609

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3050B/6010B	

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 8, 2009

Client Sample ID: 087116-001
Sample ID: 226257005
Matrix: SOIL
Collect Date: 16-MAR-09 09:12
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU3-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>3050/6010 Silver Federal "As Received"</i>											
Silver		6.65	0.0998	0.499	mg/kg	1	HSC	03/28/09	0520	851615	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3050B	846 3050BS PREP	CXS3	03/26/09	0802	851609

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3050B/6010B	

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 8, 2009

Client Sample ID: 087117-001
Sample ID: 226257007
Matrix: SOIL
Collect Date: 16-MAR-09 09:19
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU4-S

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>3050/6010 Silver Federal "As Received"</i>											
Silver		32.2	0.0969	0.484	mg/kg	1	HSC	03/28/09	0527	851615	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3050B	846 3050BS PREP	CXS3	03/26/09	0802	851609

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3050B/6010B	

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 8, 2009

Client Sample ID: 087118-001
Sample ID: 226257009
Matrix: SOIL
Collect Date: 16-MAR-09 08:53
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU1-S-DUP

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>3050/6010 Silver Federal "As Received"</i>											
Silver		170	0.491	2.46	mg/kg	5	HSC	03/30/09	1340	851615	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3050B	846 3050BS PREP	CXS3	03/26/09	0802	851609

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3050B/6010B	

GEL LABORATORIES LLC

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

QC Summary

Report Date: April 8, 2009
Page 1 of 2

Sandia National Laboratories
MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico

Contact: Ms. Pamela M. Puissant

Workorder: 226257

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	851615										
QC1201801017	226257001	DUP									
Silver		40.8		31.1	mg/kg	27 *		(0%-20%)	HSC	03/28/09	04:27
QC1201801016	LCS										
Silver	133			132	mg/kg		99	(83%-117%)		03/28/09	04:13
QC1201801015	MB										
Silver			U	ND	mg/kg					03/28/09	04:06
QC1201801018	226257001	MS									
Silver	49.4	40.8		74.6	mg/kg		69 *	(75%-125%)		03/28/09	04:34
QC1201801023	226257001	MSD									
Silver	50.0	40.8		90.2	mg/kg	19	99	(0%-20%)		03/28/09	04:40
QC1201801019	226257001	PS									
Silver	500	426		921	ug/L		99	(75%-125%)		03/28/09	05:00
QC1201801020	226257001	SDILT									
Silver		426		86.4	ug/L	1.48		(0%-10%)		03/28/09	05:06

Notes:

RER is calculated at the 95% confidence level (2-sigma).

The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
- ** Indicates analyte is a surrogate compound.
- B The analyte was found in the blank above the effective MDL.
- H Analytical holding time was exceeded
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- Z The percent difference is greater than 70%.
- d The 2:1 depletion requirement was not met for this sample
- h Prep holding time exceeded

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QC Summary

Workorder: 226257

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	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.

^ 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.

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Certificate of Analysis Report for

SNLS003 Sandia National Labs (691436)

Client SDG: 226257-1 GEL Work Order: 226265

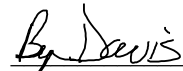
The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
- ** Indicates analyte is a surrogate compound.
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.

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

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

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


Reviewed by

4-14-09

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Sandia National Laboratories
Address : MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico 87123
Contact: Ms. Pamela M. Puissant
Project: **Level C Data Package**

Report Date: April 8, 2009

Client Sample ID: 087120-001
Sample ID: 226265001
Matrix: AQUEOUS
Collect Date: 16-MAR-09 09:30
Receive Date: 17-MAR-09
Collector: Client

Project: SNLS00207
Client ID: SNLS003

Client Desc.: TTU-EB1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP											
<i>3005/6010 Silver Liquid Federal "As Received"</i>											
Silver	U	ND	0.001	0.005	mg/L	1	HSC	03/24/09	0851	851650	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	CXS3	03/19/09	0820	851649

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3005/6010B	

GEL LABORATORIES LLC

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

QC Summary

Report Date: April 8, 2009
Page 1 of 1

Sandia National Laboratories
MS-0756, Org. 06765, Bldg. 823/Rm. 4276
1515 Eubank SE
Albuquerque, New Mexico

Contact: Ms. Pamela M. Puissant

Workorder: 226265

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch	851650										
QC1201801077	LCS										
Silver	0.500			0.502	mg/L		100	(80%-120%)	HSC	03/24/09	08:38
QC1201801082	LCSD										
Silver	0.500			0.494	mg/L	2	99	(0%-20%)		03/24/09	08:44
QC1201801076	MB										
Silver			U	ND	mg/L					03/24/09	08:31
QC1201801080	226265001 PS										
Silver	500	U	ND	497	ug/L		99	(75%-125%)		03/24/09	08:58
QC1201801081	226265001 SDILT										
Silver		U	ND	U	ND	ug/L	N/A	(0%-10%)		03/24/09	09:05

Notes:

RER is calculated at the 95% confidence level (2-sigma).

The Qualifiers in this report are defined as follows:

- * Recovery or %RPD not within acceptance limits and/or spike amount not compatible with the sample or the duplicate RPD's are not applicable where the concentration falls below the effective PQL.
- ** Indicates analyte is a surrogate compound.
- B The analyte was found in the blank above the effective MDL.
- H Analytical holding time was exceeded
- J Estimated value, the analyte concentration fell above the effective MDL and below the effective PQL
- P The response between the confirmation column and the primary column is >40%D
- U The analyte was analyzed for but not detected below this concentration. For Organic and Inorganic analytes the result is less than the effective MDL. For radiochemical analytes the result is less than the Decision Level
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- X Presumptive evidence that the analyte is not present. Please see narrative for further information.
- Z The percent difference is greater than 70%.
- d The 2:1 depletion requirement was not met for this sample
- h Prep holding time 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.

HPLC Explosive Analysis

**Explosives Narrative
Sandia National Labs (SNLS)
SDG 226257**

Method/Analysis Information

Procedure: Nitroaromatics and Nitramines by High Performance Liquid Chromatography (HPLC)
Analytical Method: SW846 8330
Prep Method: SW846 8330 PREP
Analytical Batch Number: 851476
Prep Batch Number: 851475

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8330:

Sample ID	Client ID
226257002	087114-002
226257004	087115-002
226257006	087116-002
226257008	087117-002
226257010	087118-002
1201800732	Method Blank (MB)
1201800733	Laboratory Control Sample (LCS)
1201800734	226257002(087114-002) Matrix Spike (MS)
1201800735	226257002(087114-002) 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-033 REV# 16.

226257-HPLC_EXP_REV1

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Raw data reports are processed and reviewed by the analyst using the Target software package. False positives have been removed from the Target quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

Due to software limitations, the Calibration Summary Form 6 may not indicate all the calibration files comprising the initial calibration. 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.

Please note that the 'Cal Date' indicated on each quantitation report reflects the date and time of the most recent calibrated analyte(s) in the Target processing method. Since the laboratory may calibrate with multiple solutions on different days using the same processing method, the Target software will update the 'Cal Date' to the last calibration file, date and time. The correct dates and times for all calibration files are located on the Calibration History report in the Standard Data section in the data package.

The linear equation used in Target and indicated on the initial calibration summary form is not a conventional linear equation (slope intercept formula) and does not match the equation found in SW-846 method 8000B. The x and y axes are inversed in Target, so that the instrument response is treated as the independent variable (x) and the concentration ratio is treated as the dependent variable (y). The equation used in Target to calculate sample results is adjusted to account for the linear equation inversion and reciprocal slope. The adjusted calculation has been independently verified to produce valid results.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Calibration Verification Standard Requirements

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 226257002 (087114-002) was selected for matrix spike 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 RPD(s) between the MS and MSD met the acceptance limits.

226257-HPLC_EXP_REV1

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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 8330, all sample and QC extracts are diluted 1:2. Soil samples are diluted 1:2 with acidified calcium chloride solution. Water samples are diluted 1:2 with HPLC grade water. The samples in this SDG did not require any additional dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG except for dilutions and/or confirmations.

Miscellaneous Information

Nonconformance Documentation

Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and/or samples may have required manual integrations due to software limitations.

Additional Comments

Water samples and associated QC were prepared with HPLC grade de-ionized water instead of acidified de-ionized water at the direction of the Quality Department.

The Form 8 is used only as a sequence of the analysis. The mean surrogate RT from initial calibration is not considered in evaluating the RT.

The Instrument Blank does not contain the surrogate.

Confirmation analysis was performed on some of the samples in this batch. The values reported are from the primary analysis. The confirmation analysis is used for qualitative purposes only. Confirmation of analyte(s) is shown with the generation of a Form 10 only when the data for the analyte(s) have met the acceptance criteria. The sample(s) in question first must be analyzed on both the primary and confirmation columns. After the data are evaluated and confirmation criteria have been met is a Form 10/Identification Summary generated. Otherwise the analyte is assigned a U qualifier or similar designation.

The following analytes co-elute in the confirmation analysis: 1) Peaks in each mix (A,B, C) separate, however co-elution does exist. When a standard containing all explosive analytes was analyzed, the following co-elution existed: a) the three Nitrotoluenes elute in a large, wide peak; b) 2-Amino-4,6-dinitrotoluene and 4-Amino-2,6-dinitrotoluene co-elute in one peak; and c) 2,4- and 2,6-Dinitrotoluene separate with a small valley. As a result some of these analytes may be flagged with a P qualifier. The co-elution from the confirmation analysis should be considered and the values as suspect to the sample.

This package is a regeneration of the original package with the addition of PETN to the analyte list.

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 analyst, reviewer, and report specialist names 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 laboratory utilizes a high performance liquid chromatography (HPLC) instrument configuration for explosives analyses. The chromatographic hardware system consists several HP Model 1100 HPLC with programmable gradient pumping and a 100 ul loop injector for the primary system and a 100 ul loop injector for the confirmation system. The HPLC 1100 is coupled to a HP Model G1315A Diode Array UV detector which monitor absorbance at the following five wavelengths: 1) 214 nm; 2) 224 nm; 3) 235 nm; 4) 254 nm; 5) 264 nm.

The primary HPLC system is usually identified with either a designation of HPLC C or HPLC D, in the raw data printouts. The confirmation HPLC system is usually identified with a designation of HPLC C or HPLC D in the raw data printouts. The HP 1100 HPLC has a Column Switching Valve that enables this system to be used for primary analysis or confirmation analysis.

Chromatographic Columns

Chromatographic separation of nitroaromatic and nitramine components is accomplished through analysis on the following reversed phase columns:

Phenomenex Ultracarb C-18; 5 micron ODS (20) 250 x 4.6 mm

Confirmation of nitroaromatic and nitramine components, initially identified on one of the above columns, is accomplished through analysis on the following column:

Phenomenex Develosil CN-UG-5, 4.6 mm x 250 mm.

The primary column is used for quantitation while the confirmation column is for qualitative purposes only.

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: Stephen R. Mauer

Date: 01/20/09

Roadmap for SNLS 226257 HPLC_EXP

This roadmap was packaged by lbd on 03-31-2009, 17:00.

This roadmap was packaged by tif01298 on 03-31-2009, 17:11.

This roadmap was analyzed by cww on 04-17-2009, 15:39.

This roadmap was reviewed by hnm on 04-17-2009, 16:23.

Primary Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcc.i/x032309.b/ex3c2313.d	226257002	sample	23-MAR-2009	17:32	226257.sub	087114-002	2	851476	
☐	N	/chem/hplcc.i/x032309.b/ex3c2316.d	226257004	sample	23-MAR-2009	19:24	226257.sub	087115-002	2	851476	
☐	N	/chem/hplcc.i/x032309.b/ex3c2317.d	226257006	sample	23-MAR-2009	20:01	226257.sub	087116-002	2	851476	xc4c2510
☐	N	/chem/hplcc.i/x032309.b/ex3c2318.d	226257008	sample	23-MAR-2009	20:39	226257.sub	087117-002	2	851476	
☐	N	/chem/hplcc.i/x032309.b/ex3c2319.d	226257010	sample	23-MAR-2009	21:16	226257.sub	087118-002	2	851476	

Confirmation Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcd.i/x032509.b/xc4c2510.d	226257006	sample	25-MAR-2009	16:27	226257.sub	087116-002	2	851476	ex3c2317

Primary QC Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcc.i/x032309.b/ex3c2311.d	1201800732	mb	23-MAR-2009	16:17	226257.sub	XBLK01	2	851476	xc4c2509
☐	N	/chem/hplcc.i/x032309.b/ex3c2312.d	1201800733	lcs	23-MAR-2009	16:54	226257.sub	XBLK01LCS	2	851476	Pass
☐	N	/chem/hplcc.i/x032309.b/ex3c2314.d	1201800734	ms	23-MAR-2009	18:09	226257.sub	087114-002MS	2	851476	Pass
☐	N	/chem/hplcc.i/x032309.b/ex3c2315.d	1201800735	msd	23-MAR-2009	18:47	226257.sub	087114-002MSD	2	851476	Pass

Confirmation QC Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcd.i/x032509.b/xc4c2509.d	1201800732	mb	25-MAR-2009	15:39	226257.sub	XBLK01	2	851476	ex3c2311

Standard Data

SW846 8330 - Primary Calibration Standard Concentration Levels						
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	7.5	50	250	500	2500	5000
3,4-Dinitrotoluene	15	100	500	1000	5000	10000
CCV	500	500	500	500	500	500
HMX	15	100	500	1000	5000	10000
RDX	15	100	500	1000	5000	10000
1,3,5-Trinitrobenzene	15	100	500	1000	5000	10000
1,3-Dinitrobenzene	15	100	500	1000	5000	10000
Nitrobenzene	15	100	500	1000	5000	10000
Tetryl	15	100	500	1000	5000	10000
Nitroglycerin	15	100	500	1000	5000	10000
2,4,6-Trinitrotoluene	15	100	500	1000	5000	10000
2-Amino-4,6-dinitrotoluene	15	100	500	1000	5000	10000
4-Amino-2,6-dinitrotoluene	15	100	500	1000	5000	10000
2,4-Dinitrotoluene	15	100	500	1000	5000	10000
2,6-Dinitrotoluene	15	100	500	1000	5000	10000
2-Nitrotoluene	15	100	500	1000	5000	10000
4-Nitrotoluene	15	100	500	1000	5000	10000
3-Nitrotoluene	15	100	500	1000	5000	10000
PETN	100	1000	10000	10000	10000	10000
CCV	500	500	500	500	500	500
SW846 8330 - Confirmation Calibration Standard Concentration Levels						
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	7.5	50	250	500	2500	5000
3,4-Dinitrotoluene	15	100	500	1000	5000	10000
CCV	500	500	500	500	500	500
HMX	15	100	500	1000	5000	10000
RDX	15	100	500	1000	5000	10000
1,3,5-Trinitrobenzene	15	100	500	1000	5000	10000
1,3-Dinitrobenzene	15	100	500	1000	5000	10000
Nitrobenzene	15	100	500	1000	5000	10000
Tetryl	15	100	500	1000	5000	10000
Nitroglycerin	15	100	500	1000	5000	10000
2,4,6-Trinitrotoluene	15	100	500	1000	5000	10000
2-Amino-4,6-dinitrotoluene	15	100	500	1000	5000	10000
4-Amino-2,6-dinitrotoluene	15	100	500	1000	5000	10000
2,4-Dinitrotoluene	15	100	500	1000	5000	10000
2,6-Dinitrotoluene	15	100	500	1000	5000	10000
2-Nitrotoluene	15	100	500	1000	5000	10000
4-Nitrotoluene	15	100	500	1000	5000	10000
3-Nitrotoluene	15	100	500	1000	5000	10000
PETN	100	1000	10000	10000	10000	10000
CCV	500	500	500	500	500	500

All values are ng/ml without the prep factor.

8330 (02/09)

Report Date: 18-Feb-2009 17:09

Calibration History

Method : /chem/hplcc.i/x021809.b/8330-021809.m
Start Cal Date: 18-FEB-2009 10:46
End Cal Date : 18-FEB-2009 14:31

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 15.00000		
18-FEB-2009 12:38	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1805.d
Cal Level: 2 , Cal Amount: 50.00000		
18-FEB-2009 14:31	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1808.d
Cal Level: 3 , Cal Amount: 100.00000		
18-FEB-2009 12:01	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1804.d
Cal Level: 4 , Cal Amount: 500.00000		
18-FEB-2009 13:53	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1807.d
Cal Level: 5 , Cal Amount: 1000.00000		
18-FEB-2009 11:23	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1803.d
Cal Level: 6 , Cal Amount: 5000.00000		
18-FEB-2009 13:16	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1806.d
Cal Level: 7 , Cal Amount: 10000.00000		
18-FEB-2009 10:46	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1802.d

Continuing Calibration

Ccal Level Mode: GLOBAL LEVEL 11

Ccal Level: 11, Ccal Amount: 500		
18-FEB-2009 16:03	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1810.d

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 18-FEB-2009 10:46
 End Cal Date : 18-FEB-2009 14:31
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcc.i/x021809.b/8330-021809.m
 Cal Date : 18-Feb-2009 17:06 cww
 Curve Type : Average

Calibration File Names:

Level 1: /chem/hplcc.i/x021809.b/ex3b1805.d
 Level 2: /chem/hplcc.i/x021809.b/ex3b1808.d
 Level 3: /chem/hplcc.i/x021809.b/ex3b1804.d
 Level 4: /chem/hplcc.i/x021809.b/ex3b1807.d
 Level 5: /chem/hplcc.i/x021809.b/ex3b1803.d
 Level 6: /chem/hplcc.i/x021809.b/ex3b1806.d
 Level 7: /chem/hplcc.i/x021809.b/ex3b1802.d

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
1 HMX	583 576	579	573	582	580	574	578	0.654
2 RDX	402 375	398	383	379	379	373	384	2.915
3 1,3,5-Trinitrobenzene	1001 1029	1028	1020	1041	1033	1028	1026	1.239
4 1,3-Dinitrobenzene	650 627	657	633	639	635	625	638	1.846
5 Tetryl	626 672	644	689	664	646	673	659	3.241
6 Nitrobenzene	497 491	498	503	499	496	487	496	1.114
9 2,4,6-Trinitrotoluene	618 595	614	603	618	609	594	607	1.651

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 18-FEB-2009 10:46
 End Cal Date : 18-FEB-2009 14:31
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcc.i/x021809.b/8330-021809.m
 Cal Date : 18-Feb-2009 17:06 cww
 Curve Type : Average

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
10 4-Amino-2,6-dinitrotoluene	765 752	790	751	797	774	757	769	2.353
11 2-Amino-4,6-dinitrotoluene	687 713	657	710	729	727	711	705	3.572
12 2,6-Dinitrotoluene	499 442	476	449	449	446	438	457	4.849
13 2,4-Dinitrotoluene	505 448	543	448	464	455	447	473	7.826
14 2-Nitrotoluene	419 432	434	421	427	454	427	431	2.759
15 4-Nitrotoluene	394 402	402	394	421	411	402	404	2.359
16 3-Nitrotoluene	494 517	498	555	518	517	515	516	3.846
17 PETN	+++++ 184	197	210	166	185	178	187	8.238
\$ 8 3,4-Dinitrotoluene	511 508	521	516	527	515	511	515	1.278

GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcc.i Injection Date: 18-FEB-2009 16:03
 Lab File ID: ex3b1810.d Init. Cal. Date(s): 18-FEB-2009 18-FEB-2009
 Analysis Type: Init. Cal. Times: 10:46 14:31
 Lab Sample ID: WXP090218-01 Quant Type: ESTD
 Method: /chem/hplcc.i/x021809.b/8330-021809.m

COMPOUND	RRF / AMOUNT	RF500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
\$ 8 3,4-Dinitrotoluene	515	519	0.010	0.77679	15.00000	Averaged
1 HMX	578	540	0.010	-6.48786	15.00000	Averaged
2 RDX	384	375	0.010	-2.46267	15.00000	Averaged
3 1,3,5-Trinitrobenzene	1026	1008	0.010	-1.69651	15.00000	Averaged
4 1,3-Dinitrobenzene	638	627	0.010	-1.78521	15.00000	Averaged
5 Tetryl	659	638	0.010	-3.19758	15.00000	Averaged
6 Nitrobenzene	496	487	0.010	-1.69817	15.00000	Averaged
9 2,4,6-Trinitrotoluene	607	599	0.010	-1.29939	15.00000	Averaged
10 4-Amino-2,6-dinitrotoluene	769	726	0.010	-5.58191	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	705	619	0.010	-12.19332	15.00000	Averaged
12 2,6-Dinitrotoluene	457	443	0.010	-2.98054	15.00000	Averaged
13 2,4-Dinitrotoluene	473	452	0.010	-4.34044	15.00000	Averaged
14 2-Nitrotoluene	431	422	0.010	-2.00848	15.00000	Averaged
15 4-Nitrotoluene	404	416	0.010	3.08828	15.00000	Averaged
16 3-Nitrotoluene	516	504	0.010	-2.32557	15.00000	Averaged
17 PETN	187	170	0.010	-8.75361	15.00000	Averaged

Average %D / Drift Results.
 =====
 Calculated Average %D/Drift = 3.79227
 Maximum Average %D/Drift = 15.00000
 * Passed Average %D/Drift Test.

Report Date: 06-Mar-2009 17:40

Calibration History

Method : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
Start Cal Date: 05-MAR-2009 15:25
End Cal Date : 06-MAR-2009 09:16

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 15.00000		
06-MAR-2009 06:50	MixC+	/chem/hplcd.i/x030509.b/x04c0521.d
06-MAR-2009 00:20	MixB	/chem/hplcd.i/x030509.b/x04c0513.d
05-MAR-2009 17:51	MixA	/chem/hplcd.i/x030509.b/x04c0505.d
Cal Level: 2 , Cal Amount: 50.00000		
06-MAR-2009 09:16	MixC+	/chem/hplcd.i/x030509.b/x04c0524.d
06-MAR-2009 02:46	MixB	/chem/hplcd.i/x030509.b/x04c0516.d
05-MAR-2009 20:17	MixA	/chem/hplcd.i/x030509.b/x04c0508.d
Cal Level: 3 , Cal Amount: 100.00000		
06-MAR-2009 06:01	MixC+	/chem/hplcd.i/x030509.b/x04c0520.d
05-MAR-2009 23:32	MixB	/chem/hplcd.i/x030509.b/x04c0512.d
05-MAR-2009 17:03	MixA	/chem/hplcd.i/x030509.b/x04c0504.d
Cal Level: 4 , Cal Amount: 500.00000		
06-MAR-2009 08:27	MixC+	/chem/hplcd.i/x030509.b/x04c0523.d
06-MAR-2009 01:58	MixB	/chem/hplcd.i/x030509.b/x04c0515.d
05-MAR-2009 19:29	MixA	/chem/hplcd.i/x030509.b/x04c0507.d
Cal Level: 5 , Cal Amount: 1000.00000		
06-MAR-2009 05:13	MixC+	/chem/hplcd.i/x030509.b/x04c0519.d
05-MAR-2009 22:43	MixB	/chem/hplcd.i/x030509.b/x04c0511.d
05-MAR-2009 16:14	MixA	/chem/hplcd.i/x030509.b/x04c0503.d
Cal Level: 6 , Cal Amount: 5000.00000		
06-MAR-2009 07:39	MixC+	/chem/hplcd.i/x030509.b/x04c0522.d
06-MAR-2009 01:09	MixB	/chem/hplcd.i/x030509.b/x04c0514.d
05-MAR-2009 18:40	MixA	/chem/hplcd.i/x030509.b/x04c0506.d
Cal Level: 7 , Cal Amount: 10000.00000		
06-MAR-2009 04:24	MixC+	/chem/hplcd.i/x030509.b/x04c0518.d
05-MAR-2009 21:55	MixB	/chem/hplcd.i/x030509.b/x04c0510.d
05-MAR-2009 15:25	MixA	/chem/hplcd.i/x030509.b/x04c0502.d

Continuing Calibration
Ccal Level Mode: GLOBAL LEVEL 11

Ccal Level: 11, Ccal Amount: 500		
06-MAR-2009 12:31	MixC+	/chem/hplcd.i/xc030509.b/xc4c0528.d
Ccal Level: 11, Ccal Amount: 500		
06-MAR-2009 11:42	MixB+	/chem/hplcd.i/xc030509.b/xc4c0527.d
Ccal Level: 11, Ccal Amount: 500		
06-MAR-2009 10:53	MixA+	/chem/hplcd.i/xc030509.b/xc4c0526.d

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 05-MAR-2009 15:25
 End Cal Date : 06-MAR-2009 09:16
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcd.i/xc030509.b/8330CN-XC030509.m
 Cal Date : 06-Mar-2009 17:32 cww
 Curve Type : Average

Calibration File Names:

Level 1: /chem/hplcd.i/xc030509.b/xc4c0521.d
 Level 2: /chem/hplcd.i/xc030509.b/xc4c0524.d
 Level 3: /chem/hplcd.i/xc030509.b/xc4c0520.d
 Level 4: /chem/hplcd.i/xc030509.b/xc4c0523.d
 Level 5: /chem/hplcd.i/xc030509.b/xc4c0519.d
 Level 6: /chem/hplcd.i/xc030509.b/xc4c0522.d
 Level 7: /chem/hplcd.i/xc030509.b/xc4c0518.d

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
1 Nitrobenzene	429 347	361	351	350	350	347	362	8.274
2 1,3,5-Trinitrobenzene	245 208	204	206	205	214	203	212	7.015
3 1,3-Dinitrobenzene	528 489	526	498	491	493	490	502	3.447
4 4-Nitrotoluene	314 267	288	275	266	274	267	279	6.214
5 2-Nitrotoluene	227 195	172	175	177	180	180	186	10.326
6 3-Nitrotoluene	376 365	384	376	372	375	369	374	1.613
7 RDX	285 239	259	250	248	251	249	255	5.805

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 05-MAR-2009 15:25
 End Cal Date : 06-MAR-2009 09:16
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
 Cal Date : 06-Mar-2009 17:32 cww
 Curve Type : Average

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
8 2,4-Dinitrotoluene	380 405	418	417	408	415	408	407	3.159
9 2,6-Dinitrotoluene	377 331	314	312	343	333	328	334	6.538
10 2,4,6-Trinitrotoluene	417 405	407	390	412	413	411	408	2.194
11 2-Amino-4,6-dinitrotoluene	528 495	526	509	500	505	498	509	2.615
12 4-Amino-2,6-dinitrotoluene	536 498	524	510	504	505	498	511	2.801
14 HMX	371 317	328	327	320	321	318	329	5.775
15 Nitroglycerin	++++ 108	114	117	108	110	109	111	3.358
16 Tetryl	422 421	429	427	418	432	423	425	1.163
17 PETN	++++ 128	113	126	132	132	129	126	5.526
\$ 13 3,4-Dinitrotoluene	374 369	382	376	370	379	369	374	1.427

Data File: /chem/hplcd.i/xc030509.b/xc4c0526.d
Report Date: 06-Mar-2009 17:31

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 06-MAR-2009 10:53
Lab File ID: xc4c0526.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090306-02 Quant Type: ESTD
Method: /chem/hplcd.i/xc030509.b/8330CN-XC030509.m

COMPOUND	RRF / AMOUNT		MIN		MAX		CURVE TYPE
	RRF	AMOUNT	RRF	%D / %DRIFT	%D / %DRIFT		
1 Nitrobenzene	362		343	0.010	-5.26708	15.00000	Averaged
5 2-Nitrotoluene	186		175	0.010	-6.07168	15.00000	Averaged
7 RDX	255		247	0.010	-2.92997	15.00000	Averaged
9 2,6-Dinitrotoluene	334		337	0.010	1.10365	15.00000	Averaged
10 2,4,6-Trinitrotoluene	408		425	0.010	4.22783	15.00000	Averaged
12 4-Amino-2,6-dinitrotoluene	511		528	0.010	3.41802	15.00000	Averaged
\$ 13 3,4-Dinitrotoluene	374		352	0.010	-6.00032	15.00000	Averaged
14 HMX	329		299	0.010	-9.14226	15.00000	Averaged

Data File: /chem/hplcd.i/xc030509.b/xc4c0527.d
Report Date: 06-Mar-2009 17:32

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 06-MAR-2009 11:42
Lab File ID: xc4c0527.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090306-03 Quant Type: ESTD
Method: /chem/hplcd.i/xc030509.b/8330CN-XC030509.m

COMPOUND	RRF / AMOUNT		MIN		MAX		CURVE TYPE
	RRF	AMOUNT	RF500	RRF	%D / %DRIFT	%D / %DRIFT	
3 1,3-Dinitrobenzene	502		515	0.010	2.56328	15.00000	Averaged
6 3-Nitrotoluene	374		375	0.010	0.37792	15.00000	Averaged
8 2,4-Dinitrotoluene	407		423	0.010	3.92792	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	509		518	0.010	1.85719	15.00000	Averaged
\$ 13 3,4-Dinitrotoluene	374		357	0.010	-4.50446	15.00000	Averaged
17 PETN	126		130	0.010	2.75857	15.00000	Averaged

GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcc.i Injection Date: 23-MAR-2009 15:02
 Lab File ID: ex3c2309.d Init. Cal. Date(s): 18-FEB-2009 18-FEB-2009
 Analysis Type: Init. Cal. Times: 10:46 14:31
 Lab Sample ID: WXP090323-01 Quant Type: ESTD
 Method: /chem/hplcc.i/x032309.b/8330-021809.m

COMPOUND	RRF / AMOUNT	RF500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
\$ 8 3,4-Dinitrotoluene	515	523	0.010	1.43840	15.00000	Averaged
1 HMX	578	547	0.010	-5.40859	15.00000	Averaged
2 RDX	384	376	0.010	-2.09424	15.00000	Averaged
3 1,3,5-Trinitrobenzene	1026	1015	0.010	-1.07552	15.00000	Averaged
4 1,3-Dinitrobenzene	638	637	0.010	-0.09632	15.00000	Averaged
5 Tetryl	659	640	0.010	-2.87232	15.00000	Averaged
6 Nitrobenzene	496	501	0.010	1.08082	15.00000	Averaged
9 2,4,6-Trinitrotoluene	607	605	0.010	-0.42495	15.00000	Averaged
10 4-Amino-2,6-dinitrotoluene	769	697	0.010	-9.43042	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	705	626	0.010	-11.22948	15.00000	Averaged
12 2,6-Dinitrotoluene	457	446	0.010	-2.46677	15.00000	Averaged
13 2,4-Dinitrotoluene	473	445	0.010	-5.80301	15.00000	Averaged
14 2-Nitrotoluene	431	423	0.010	-1.75111	15.00000	Averaged
15 4-Nitrotoluene	404	400	0.010	-0.89667	15.00000	Averaged
16 3-Nitrotoluene	516	538	0.010	4.22983	15.00000	Averaged
17 PETN	187	184	0.010	-1.24885	15.00000	Averaged

Average %D / Drift Results.
 =====
 Calculated Average %D/Drift = 3.22171
 Maximum Average %D/Drift = 15.00000
 * Passed Average %D/Drift Test.

GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcc.i Injection Date: 23-MAR-2009 21:54
 Lab File ID: ex3c2320.d Init. Cal. Date(s): 18-FEB-2009 18-FEB-2009
 Analysis Type: Init. Cal. Times: 10:46 14:31
 Lab Sample ID: WXP090323-01 Quant Type: ESTD
 Method: /chem/hplcc.i/x032309.b/8330-021809.m

COMPOUND	RRF / AMOUNT	RF500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
\$ 8 3,4-Dinitrotoluene	515	523	0.010	1.54821	15.00000	Averaged
1 HMX	578	547	0.010	-5.36326	15.00000	Averaged
2 RDX	384	379	0.010	-1.28972	15.00000	Averaged
3 1,3,5-Trinitrobenzene	1026	1018	0.010	-0.76084	15.00000	Averaged
4 1,3-Dinitrobenzene	638	634	0.010	-0.62606	15.00000	Averaged
5 Tetryl	659	627	0.010	-4.93738	15.00000	Averaged
6 Nitrobenzene	496	493	0.010	-0.49381	15.00000	Averaged
9 2,4,6-Trinitrotoluene	607	603	0.010	-0.63310	15.00000	Averaged
10 4-Amino-2,6-dinitrotoluene	769	700	0.010	-8.96017	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	705	615	0.010	-12.76646	15.00000	Averaged
12 2,6-Dinitrotoluene	457	456	0.010	-0.24145	15.00000	Averaged
13 2,4-Dinitrotoluene	473	449	0.010	-5.02117	15.00000	Averaged
14 2-Nitrotoluene	431	417	0.010	-3.14668	15.00000	Averaged
15 4-Nitrotoluene	404	402	0.010	-0.45236	15.00000	Averaged
16 3-Nitrotoluene	516	507	0.010	-1.72441	15.00000	Averaged
17 PETN	187	187	0.010	-0.08215	15.00000	Averaged

Average %D / Drift Results.
 =====
 Calculated Average %D/Drift = 3.00295
 Maximum Average %D/Drift = 15.00000
 * Passed Average %D/Drift Test.

Data File: /chem/hplcd.i/xc032509.b/xc4c2503.d
Report Date: 17-Apr-2009 14:42

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 10:46
Lab File ID: xc4c2503.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-02 Quant Type: ESTD
Method: /chem/hplcd.i/xc032509.b/8330CN-XC030509.m

		_____		MIN		MAX	
COMPOUND	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE	
=====	=====	=====	=====	=====	=====	=====	=====
1 Nitrobenzene	362	344	0.010	-4.97780	15.00000	Averaged	
5 2-Nitrotoluene	186	175	0.010	-6.05345	15.00000	Averaged	
7 RDX	255	249	0.010	-2.30187	15.00000	Averaged	
9 2,6-Dinitrotoluene	334	338	0.010	1.17256	15.00000	Averaged	
10 2,4,6-Trinitrotoluene	408	420	0.010	2.92021	15.00000	Averaged	
12 4-Amino-2,6-dinitrotoluene	511	532	0.010	4.26209	15.00000	Averaged	
\$ 13 3,4-Dinitrotoluene	374	353	0.010	-5.67206	15.00000	Averaged	
14 HMX	329	300	0.010	-8.70601	15.00000	Averaged	

Data File: /chem/hplcd.i/xc032509.b/xc4c2504.d
Report Date: 17-Apr-2009 14:42

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 11:35
Lab File ID: xc4c2504.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-03 Quant Type: ESTD
Method: /chem/hplcd.i/xc032509.b/8330CN-XC030509.m

COMPOUND	_____	MIN	MAX		CURVE TYPE
	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	
=====	=====	=====	=====	=====	=====
3 1,3-Dinitrobenzene	502	518	0.010	3.10729	Averaged
6 3-Nitrotoluene	374	380	0.010	1.74920	Averaged
8 2,4-Dinitrotoluene	407	433	0.010	6.28192	Averaged
11 2-Amino-4,6-dinitrotoluene	509	525	0.010	3.17644	Averaged
\$ 13 3,4-Dinitrotoluene	374	367	0.010	-1.79608	Averaged
17 PETN	126	136	0.010	7.57474	Averaged
=====	=====	=====	=====	=====	=====

Data File: /chem/hplcd.i/x032509.b/x04c2511.d
Report Date: 27-Mar-2009 16:11

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 17:16
Lab File ID: x04c2511.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-02 Quant Type: ESTD
Method: /chem/hplcd.i/x032509.b/8330CN-XC030509.m

		_____		MIN		MAX	
COMPOUND	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE	
=====	=====	=====	=====	=====	=====	=====	=====
1 Nitrobenzene	362	337	0.010	-6.87413	15.00000	Averaged	
5 2-Nitrotoluene	186	176	0.010	-5.39391	15.00000	Averaged	
7 RDX	255	252	0.010	-1.02447	15.00000	Averaged	
9 2,6-Dinitrotoluene	334	341	0.010	2.16066	15.00000	Averaged	
10 2,4,6-Trinitrotoluene	408	424	0.010	4.02828	15.00000	Averaged	
12 4-Amino-2,6-dinitrotoluene	511	531	0.010	3.90762	15.00000	Averaged	
\$ 13 3,4-Dinitrotoluene	374	352	0.010	-5.90195	15.00000	Averaged	
14 HMX	329	301	0.010	-8.50888	15.00000	Averaged	

Data File: /chem/hplcd.i/x032509.b/x04c2512.d
Report Date: 27-Mar-2009 16:11

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 18:05
Lab File ID: xc4c2512.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-03 Quant Type: ESTD
Method: /chem/hplcd.i/x032509.b/8330CN-XC030509.m

COMPOUND	RRF / AMOUNT	RF500	MIN			MAX	CURVE TYPE
			RRF	%D / %DRIFT	%D / %DRIFT		
3 1,3-Dinitrobenzene	502	519	0.010	3.34226	15.00000	Averaged	
6 3-Nitrotoluene	374	377	0.010	0.96431	15.00000	Averaged	
8 2,4-Dinitrotoluene	407	433	0.010	6.35754	15.00000	Averaged	
11 2-Amino-4,6-dinitrotoluene	509	527	0.010	3.55236	15.00000	Averaged	
\$ 13 3,4-Dinitrotoluene	374	364	0.010	-2.81506	15.00000	Averaged	
17 PETN	126	133	0.010	5.41173	15.00000	Averaged	

Analytical Sequence

Page 1 of 1

Lab Name: General Engineering Labortories LLC. **Client SDG:** 226257**GC Column:** C18 BDS**Init. Calibration Dates:**18-FEB-09 10:46 – 18-FEB-09 14:31**Instrument ID:** HPLCC.

**Analytical Sequence for Blanks, Samples,
and Standards is given below:**

Sample Number	Lab Sample ID	Analysis Date/Time
XSTD500	WXP090323-01	23-MAR-09 15:02
XIBLK04	INST BLANK	23-MAR-09 15:39
XBLK01	1201800732	23-MAR-09 16:17
XBLK01LCS	1201800733	23-MAR-09 16:54
087114-002	226257002	23-MAR-09 17:32
087114-002MS	1201800734	23-MAR-09 18:09
087114-002MSD	1201800735	23-MAR-09 18:47
087115-002	226257004	23-MAR-09 19:24
087116-002	226257006	23-MAR-09 20:01
087117-002	226257008	23-MAR-09 20:39
087118-002	226257010	23-MAR-09 21:16
XSTD500	WXP090323-01	23-MAR-09 21:54
XIBLK05	INST BLANK	23-MAR-09 22:31

Column used to flag retention time values with an asterisk.

Analytical Sequence

Page 1 of 1

Lab Name: General Engineering Labortories LLC. Client SDG: 226257

GC Column: Develosil CN

Init. Calibration Dates: 05-MAR-09 15:25 – 06-MAR-09 02:4

Instrument ID: HPLCD.

Analytical Sequence for Blanks, Samples,
and Standards is given below:

Sample Number	Lab Sample ID	Analysis Date/Time
XCIBLK01	INST BLANK	25-MAR-09 09:09
XCIBLK02	INST BLANK	25-MAR-09 09:58
XCSTD500	WXP090325-02	25-MAR-09 10:46
XCSTD500	WXP090325-03	25-MAR-09 11:35
XCIBLK03	INST BLANK	25-MAR-09 12:24
ZZZZZZZ	ZZZZZZZ	25-MAR-09 13:13
ZZZZZZZ	ZZZZZZZ	25-MAR-09 14:01
XCIBLK04	INST BLANK	25-MAR-09 14:50
XBLK01	1201800732	25-MAR-09 15:39
087116-002	226257006	25-MAR-09 16:27
XCSTD500	WXP090325-02	25-MAR-09 17:16
XCSTD500	WXP090325-03	25-MAR-09 18:05
XCIBLK05	INST BLANK	25-MAR-09 18:53

Column used to flag retention time values with an asterisk.

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x021809.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 18-Feb-2009 13:53 Number of Cpnds : 16
 Data Type : LC 3d DATA

ICAL

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.273	5.240-5.306	5.780e+02	224.00
2 RDX	7.960	7.846-8.074	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.823	10.700-10.946	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.137	12.924-13.350	6.381e+02	254.00
5 Tetryl	14.150	13.877-14.423	6.592e+02	224.00
6 Nitrobenzene	14.920	14.701-15.139	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.107	15.786-16.428	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.073	16.809-17.337	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.607	17.175-18.039	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.517	18.037-18.997	7.049e+02	224.00
12 2,6-Dinitrotoluene	19.840	19.471-20.209	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.447	20.042-20.852	4.727e+02	214.00
14 2-Nitrotoluene	24.147	23.724-24.570	4.305e+02	214.00
15 4-Nitrotoluene	25.730	25.262-26.198	4.038e+02	214.00
16 3-Nitrotoluene	27.763	27.253-28.273	5.163e+02	214.00
17 PETN	28.913	28.433-29.393	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x032309.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 23-Mar-2009 11:18 Number of Cpnds : 16
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.284	5.250-5.316	5.780e+02	224.00
2 RDX	7.987	7.873-8.101	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.860	10.737-10.983	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.187	12.974-13.400	6.381e+02	254.00
5 Tetryl	14.204	13.931-14.476	6.592e+02	224.00
6 Nitrobenzene	14.963	14.745-15.182	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.174	15.852-16.494	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.143	16.880-17.407	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.744	17.311-18.175	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.663	18.183-19.143	7.049e+02	224.00
12 2,6-Dinitrotoluene	19.937	19.568-20.306	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.553	20.148-20.959	4.727e+02	214.00
14 2-Nitrotoluene	24.237	23.814-24.660	4.305e+02	214.00
15 4-Nitrotoluene	25.850	25.382-26.318	4.038e+02	214.00
16 3-Nitrotoluene	27.884	27.373-28.393	5.163e+02	214.00
17 PETN	28.937	28.457-29.417	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x032309.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 23-Mar-2009 15:02 Number of Cpnds : 16
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.293	5.260-5.325	5.780e+02	224.00
2 RDX	8.002	7.888-8.117	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.876	10.753-10.999	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.203	12.989-13.415	6.381e+02	254.00
5 Tetryl	14.232	13.960-14.505	6.592e+02	224.00
6 Nitrobenzene	14.973	14.754-15.191	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.203	15.882-16.523	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.172	16.909-17.436	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.782	17.351-18.215	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.709	18.229-19.189	7.049e+02	224.00
12 2,6-Dinitrotoluene	19.973	19.604-20.341	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.593	20.188-20.997	4.727e+02	214.00
14 2-Nitrotoluene	24.273	23.849-24.695	4.305e+02	214.00
15 4-Nitrotoluene	25.889	25.421-26.357	4.038e+02	214.00
16 3-Nitrotoluene	27.926	27.416-28.436	5.163e+02	214.00
17 PETN	29.029	28.549-29.509	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x032309.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 23-Mar-2009 21:54 Number of Cpnds : 16
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.294	5.261-5.327	5.780e+02	224.00
2 RDX	8.010	7.896-8.124	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.894	10.771-11.017	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.234	13.021-13.447	6.381e+02	254.00
5 Tetryl	14.270	13.997-14.543	6.592e+02	224.00
6 Nitrobenzene	15.020	14.801-15.239	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.250	15.929-16.571	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.214	16.950-17.478	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.827	17.395-18.259	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.747	18.267-19.227	7.049e+02	224.00
12 2,6-Dinitrotoluene	20.017	19.648-20.386	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.630	20.225-21.035	4.727e+02	214.00
14 2-Nitrotoluene	24.327	23.904-24.750	4.305e+02	214.00
15 4-Nitrotoluene	25.954	25.486-26.422	4.038e+02	214.00
16 3-Nitrotoluene	27.990	27.480-28.500	5.163e+02	214.00
17 PETN	29.060	28.580-29.540	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 05-Mar-2009 19:29,01:58,08:27 Number of Cpnds : 17
 Data Type : LC 3d DATA

ICAL

Compound	RT	RT Window	RF	W1/ch
1 Nitrobenzene	13.539	13.080-13.998	3.623e+02	264.00
2 1,3,5-Trinitrobenzene	14.246	13.829-14.663	2.122e+02	264.00
3 1,3-Dinitrobenzene	15.054	14.508-15.600	5.022e+02	235.00
4 4-Nitrotoluene	20.626	19.978-21.274	2.789e+02	214.00
5 2-Nitrotoluene	20.922	20.160-21.684	1.865e+02	254.00
6 3-Nitrotoluene	21.241	20.554-21.928	3.738e+02	214.00
7 RDX	21.879	21.006-22.752	2.547e+02	235.00
8 2,4-Dinitrotoluene	22.774	22.123-23.425	4.073e+02	254.00
9 2,6-Dinitrotoluene	23.862	23.088-24.636	3.338e+02	214.00
10 2,4,6-Trinitrotoluene	24.805	24.044-25.567	4.079e+02	235.00
11 2-Amino-4,6-dinitrotoluene	26.074	25.423-26.725	5.086e+02	224.00
12 4-Amino-2,6-dinitrotoluene	26.429	25.670-27.188	5.106e+02	224.00
\$ 13 3,4-Dinitrotoluene	27.546	26.970-28.122	3.741e+02	214.00
14 HMX	28.722	27.924-29.520	3.287e+02	235.00
15 Nitroglycerin	29.570	28.829-30.311	1.109e+02	214.00
16 Tetryl	32.240	31.457-33.023	4.246e+02	224.00
17 PETN	38.531	38.120-38.942	1.265e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcd.i/x032509.b/8330CN-XC030509.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 25-Mar-2009 10:46 & 11:35 Number of Cpnds : 17
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 Nitrobenzene	13.464	13.005-13.923	3.623e+02	264.00
3 1,3-Dinitrobenzene	14.963	14.417-15.509	5.022e+02	235.00
5 2-Nitrotoluene	20.891	20.129-21.653	1.865e+02	254.00
6 3-Nitrotoluene	21.200	20.513-21.887	3.738e+02	214.00
7 RDX	21.827	20.954-22.700	2.547e+02	235.00
8 2,4-Dinitrotoluene	22.710	22.059-23.361	4.073e+02	254.00
9 2,6-Dinitrotoluene	23.834	23.060-24.608	3.338e+02	214.00
10 2,4,6-Trinitrotoluene	24.734	23.972-25.496	4.079e+02	235.00
11 2-Amino-4,6-dinitrotoluene	26.043	25.392-26.694	5.086e+02	224.00
12 4-Amino-2,6-dinitrotoluene	26.414	25.655-27.173	5.106e+02	224.00
\$ 13 3,4-Dinitrotoluene	27.526	26.951-28.102	3.741e+02	214.00
14 HMX	28.691	27.893-29.489	3.287e+02	235.00
17 PETN	38.500	38.089-38.911	1.265e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcd.i/x032509.b/8330CN-XC030509.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 25-Mar-2009 17:16 & 18:05 Number of Cpnds : 17
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 Nitrobenzene	13.300	12.841-13.759	3.623e+02	264.00
3 1,3-Dinitrobenzene	14.829	14.283-15.375	5.022e+02	235.00
5 2-Nitrotoluene	20.817	20.055-21.579	1.865e+02	254.00
6 3-Nitrotoluene	21.102	20.415-21.789	3.738e+02	214.00
7 RDX	21.750	20.877-22.623	2.547e+02	235.00
8 2,4-Dinitrotoluene	22.615	21.964-23.266	4.073e+02	254.00
9 2,6-Dinitrotoluene	23.773	22.999-24.547	3.338e+02	214.00
10 2,4,6-Trinitrotoluene	24.637	23.875-25.399	4.079e+02	235.00
11 2-Amino-4,6-dinitrotoluene	25.992	25.341-26.643	5.086e+02	224.00
12 4-Amino-2,6-dinitrotoluene	26.347	25.588-27.106	5.106e+02	224.00
\$ 13 3,4-Dinitrotoluene	27.469	26.893-28.045	3.741e+02	214.00
14 HMX	28.647	27.849-29.445	3.287e+02	235.00
17 PETN	38.489	38.078-38.900	1.265e+02	214.00

Miscellaneous Data

Prep Logbook

Nitroaromatics and Nitramines by High Performance Liquid Chromatography (HPLC)

Batch ID: 851475 Verified by: MLH 5/12/09
Analyst: James Allnutt
Method: SW846 8330 PREP Lab SOP: GL-OA-E-033 REV# 16
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1201800732 MB	19-MAR-2009 09:42:14	2	10	5
1201800733 LCS	19-MAR-2009 09:42:14	2	10	5
226257002	19-MAR-2009 09:42:14	2	10	5
1201800734 MS (226257002)	19-MAR-2009 09:42:14	2	10	5
1201800735 MSD (226257002)	19-MAR-2009 09:42:14	2	10	5
226257004	19-MAR-2009 09:42:14	2	10	5
226257006	19-MAR-2009 09:42:14	2	10	5
226257008	19-MAR-2009 09:42:14	2	10	5
226257010	19-MAR-2009 09:42:14	2	10	5

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1201800733	8330 PETN LCS 100ppm	IXP090123-01	.1	mL	
MS	1201800734	8330 PETN LCS 100ppm	IXP090123-01	.1	mL	
MSD	1201800735	8330 PETN LCS 100ppm	IXP090123-01	.1	mL	
SURR	All	3,4-Dinitrotoluene (8330 Surr.) 100ppm	IXP090311-02	.05	mL	

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC C

DATE: 02/18/09 METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *Sam*
DATE: *02/18/09*

HARDWARE CONFIGURATION & METHOD SUMMARY: No.14 on pg.14 REF MAT#: 1075665,1075398
Extr. Injection Volume: 100 ul

Sequence Number: X021809 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090218-01

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
ex3b1801.d	INST BLANK	CWW	18-FEB-2009 10:08	-----	x021809	1.0	INST BLK	
ex3b1802.d	WXP090218-11	CWW	18-FEB-2009 10:46	ABS-ULTRA	x021809	1.0	ICAL LVL7	ABS-ULTRA
ex3b1803.d	WXP090218-13	CWW	18-FEB-2009 11:23	ABS-ULTRA	x021809	1.0	ICAL LVL5	ABS-ULTRA
ex3b1804.d	WXP090218-15	CWW	18-FEB-2009 12:01	ABS-ULTRA	x021809	1.0	ICAL LVL3	ABS-ULTRA
ex3b1805.d	WXP090218-17	CWW	18-FEB-2009 12:38	ABS-ULTRA	x021809	1.0	ICAL LVL1	ABS-ULTRA
ex3b1806.d	WXP090218-12	CWW	18-FEB-2009 13:16	ABS-ULTRA	x021809	1.0	ICAL LVL6	ABS-ULTRA
ex3b1807.d	WXP090218-14	CWW	18-FEB-2009 13:53	ABS-ULTRA	x021809	1.0	ICAL LVL4	ABS-ULTRA
ex3b1807RT.d	WXP090218-14	CWW	18-FEB-2009 13:53	ABS-ULTRA	x021809	1.0	ICAL LVL4	Duse, for ICAL RT purpose
ex3b1808.d	WXP090218-16	CWW	18-FEB-2009 14:31	ABS-ULTRA	x021809	1.0	ICAL LVL2	ABS-ULTRA
ex3b1809.d	INST BLANK	CWW	18-FEB-2009 15:26	-----	x021809	1.0	INST BLK	
ex3b1810.d	WXP090218-01	CWW	18-FEB-2009 16:03	ACCUSTD	x021809	1.0	ICV	ACCUSTD
ex3b1810A.d	WXP090218-01	CWW	18-FEB-2009 16:03	ACCUSTD	x021809	1.0	CCV	Pass, 259710 @ 16.114
ex3b1811.d	INST BLANK	CWW	18-FEB-2009 16:41	-----	x021809	1.0	INST BLK	
ex3b1812.d	1120177705	CWW	18-FEB-2009 17:18	1841887	1224142	2.0	MB	Duse (RE) xc4b1909
ex3b1813.d	1120177706	CWW	18-FEB-2009 17:55	1841887	1224142	2.0	LCS	Duse (RE) Pass
ex3b1814.d	1120177709	CWW	18-FEB-2009 18:33	1841887	1224142	2.0	LCS	Duse (RE) Pass
ex3b1815.d	1224142002	CWW	18-FEB-2009 19:10	1841887	1224142	2.0	PNTX	Duse (RE) xc4b1910 Confirms high surrogate of ex3b1205

Instrument Batch: /chem/hplcc.i/x021809.b

Page: 1

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
ex3b1816.d	INST BLANK	CWW	18-FEB-2009 19:48	-----	x021809	1.0	INST BLK	

ex3b1817.d	1201777179	CwW	18-FEB-2009 20:25	841624	224375		2.0 MB	xc4b1912	
+	+	+	+	+	+	+	+	+	+
ex3b1818.d	1201777180	CwW	18-FEB-2009 21:02	841624	224375		2.0 LCS	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1819.d	1201777183	CwW	18-FEB-2009 21:40	841624	224375		2.0 LCSD	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1820.d	224375013	CwW	18-FEB-2009 22:17	841624	224375		2.0 SSFL	xc4b1913	
+	+	+	+	+	+	+	+	+	+
ex3b1821.d	WXP090218-01	CwW	18-FEB-2009 22:55	ACCUSTD	x021809		1.0 CCV	Pass, 257666 @ 16.114	
+	+	+	+	+	+	+	+	+	+
ex3b1822.d	INST BLANK	CwW	18-FEB-2009 23:32	-----	x021809		1.0 INST BLK		
+	+	+	+	+	+	+	+	+	+
ex3b1823.d	1201777146	CwW	19-FEB-2009 00:10	841616	224375		2.0 MB	xc4b1915	
+	+	+	+	+	+	+	+	+	+
ex3b1824.d	1201777147	CwW	19-FEB-2009 00:47	841616	224375		2.0 LCS	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1825.d	224375003	CwW	19-FEB-2009 01:25	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1826.d	224375004	CwW	19-FEB-2009 02:02	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1827.d	1201777148	CwW	19-FEB-2009 02:40	841616	224375		2.0 004MS	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1828.d	1201777149	CwW	19-FEB-2009 03:17	841616	224375		2.0 004MSD	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1829.d	224375005	CwW	19-FEB-2009 03:54	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1830.d	224375009	CwW	19-FEB-2009 04:32	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1831.d	WXP090218-01	CwW	19-FEB-2009 05:09	ACCUSTD	x021809		1.0 CCV	Pass, 257935 @ 16.105	
+	+	+	+	+	+	+	+	+	+
ex3b1832.d	INST BLANK	CwW	19-FEB-2009 05:47	-----	x021809		1.0 INST BLK		
+	+	+	+	+	+	+	+	+	+

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC C

DATE: 03/23/09 METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *AWM*DATE: *03/23/09*

HARDWARE CONFIGURATION & METHOD SUMMARY: No.14 on pg.14

REF MAT#: 1092372, 1090393

Extr. Injection Volume: 100 ul

Sequence Number: X032309 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090323-01

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
lex3c2301.d	INST BLANK	CWW	23-MAR-2009 10:03	-----	X032309	1.0	INST BLK	
lex3c2302.d	INST BLANK	CWW	23-MAR-2009 10:40	-----	X032309	1.0	INST BLK	
lex3c2303.d	WXP090323-01	CWW	23-MAR-2009 11:18	ACCUSTD	X032309	1.0	CCV	Pass, 258785 @ 16.174
lex3c2304.d	INST BLANK	CWW	23-MAR-2009 11:55	-----	X032309	1.0	INST BLK	
lex3c2305.d	1201800791	CWW	23-MAR-2009 12:32	851503	226257-1	2.0	MB	Xc4c2506
lex3c2306.d	1201800792	CWW	23-MAR-2009 13:10	851503	226257-1	2.0	LCS	Pass
lex3c2307.d	1201800793	CWW	23-MAR-2009 13:47	851503	226257-1	2.0	LCS	Pass
lex3c2308.d	226265002	CWW	23-MAR-2009 14:25	851503	226257-1	2.0	SNLS	Xc4c2507
lex3c2309.d	WXP090323-01	CWW	23-MAR-2009 15:02	ACCUSTD	X032309	1.0	CCV	Pass, 261415 @ 16.203
lex3c2310.d	INST BLANK	CWW	23-MAR-2009 15:39	-----	X032309	1.0	INST BLK	
lex3c2311.d	1201800732	CWW	23-MAR-2009 16:17	851476	226257	2.0	MB	Xc4c2509
lex3c2312.d	1201800733	CWW	23-MAR-2009 16:54	851476	226257	2.0	LCS	Pass
lex3c2313.d	226257002	CWW	23-MAR-2009 17:32	851476	226257	2.0	SNLS	
lex3c2314.d	1201800734	CWW	23-MAR-2009 18:09	851476	226257	2.0	002MS	Pass
lex3c2315.d	1201800735	CWW	23-MAR-2009 18:47	851476	226257	2.0	002MSD	Pass
lex3c2316.d	226257004	CWW	23-MAR-2009 19:24	851476	226257	2.0	SNLS	
lex3c2317.d	226257006	CWW	23-MAR-2009 20:01	851476	226257	2.0	SNLS	Xc4c2510

Instrument Batch: /chem/hplcc.i/x032309.b

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Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
lex3c2318.d	226257008	CWW	23-MAR-2009 20:39	851476	226257	2.0	SNLS	

ex3c2319.d	226257010	CwW	23-MAR-2009	21:16	851476	226257		2.0 SNLS		+
ex3c2320.d	WXP090323-01	CwW	23-MAR-2009	21:54	ACCUSTD	x032309		1.0 CCV	Pass, 261699 @ 16.250	
ex3c2321.d	INST BLANK	CwW	23-MAR-2009	22:31	-----	x032309		1.0 INST BLK		+

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC D

DATE: 03/05/09

METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *Amg*DATE: *03/12/09*

HARDWARE CONFIGURATION & METHOD SUMMARY: No.14 on pg.14

REF MAT#: 1075665,1054169

Extr. Injection Volume: 100 ul

Sequence Number: XC030509 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090306-02, -03, -04

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c0501.d	INST BLANK	CWW	05-MAR-2009 14:37	-----	xc030509		1.0 INST BLANK	
xc4c0502.d	WXP090305-32	CWW	05-MAR-2009 15:25	ACCUSTD	xc030509		1.0 MIX A LVL7 ACCUSTD	
xc4c0503.d	WXP090305-34	CWW	05-MAR-2009 16:14	ACCUSTD	xc030509		1.0 MIX A LVL5 ACCUSTD	
xc4c0504.d	WXP090305-36	CWW	05-MAR-2009 17:03	ACCUSTD	xc030509		1.0 MIX A LVL3 ACCUSTD	
xc4c0505.d	WXP090305-50	CWW	05-MAR-2009 17:51	ACCUSTD	xc030509		1.0 MIX A LVL1 ACCUSTD	
xc4c0506.d	WXP090305-33	CWW	05-MAR-2009 18:40	ACCUSTD	xc030509		1.0 MIX A LVL6 ACCUSTD	
xc4c0507.d	WXP090305-35	CWW	05-MAR-2009 19:29	ACCUSTD	xc030509		1.0 MIX A LVL4 ACCUSTD	
xc4c0507RT.d	WXP090305-35	CWW	05-MAR-2009 19:29	ACCUSTD	xc030509		1.0 MIX A LVL4 Duse, for RT purpose only	
xc4c0508.d	WXP090305-37	CWW	05-MAR-2009 20:17	ACCUSTD	xc030509		1.0 MIX A LVL2 ACCUSTD	
xc4c0509.d	INST BLANK	CWW	05-MAR-2009 21:06	-----	xc030509		1.0 INST BLANK	
xc4c0510.d	WXP090305-38	CWW	05-MAR-2009 21:55	ACCUSTD	xc030509		1.0 MIX B LVL7 ACCUSTD	
xc4c0511.d	WXP090305-40	CWW	05-MAR-2009 22:43	ACCUSTD	xc030509		1.0 MIX B LVL5 ACCUSTD	
xc4c0512.d	WXP090305-42	CWW	05-MAR-2009 23:32	ACCUSTD	xc030509		1.0 MIX B LVL3 ACCUSTD	
xc4c0513.d	WXP090305-51	CWW	06-MAR-2009 00:20	ACCUSTD	xc030509		1.0 MIX B LVL1 ACCUSTD	
xc4c0514.d	WXP090305-39	CWW	06-MAR-2009 01:09	ACCUSTD	xc030509		1.0 MIX B LVL6 ACCUSTD	
xc4c0515.d	WXP090305-41	CWW	06-MAR-2009 01:58	ACCUSTD	xc030509		1.0 MIX B LVL4 ACCUSTD	
xc4c0515RT.d	WXP090305-41	CWW	06-MAR-2009 01:58	ACCUSTD	xc030509		1.0 MIX B LVL4 Duse, for RT purpose only	

Instrument Batch: /chem/hplcd.i/xc030509.b

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Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c0516.d	WXP090305-43	CWW	06-MAR-2009 02:46	ACCUSTD	xc030509		1.0 MIX B LVL2 ACCUSTD	

xc4c0517.d	INST BLANK	CwW	06-MAR-2009 03:35	-----	xc030509	1.0 INST BLANK	
+							+
xc4c0518.d	wXP090305-44	CwW	06-MAR-2009 04:24	ACCUSTD	xc030509	1.0 MIX C LVL7 ACCUSTD	
+							+
xc4c0519.d	wXP090305-46	CwW	06-MAR-2009 05:13	ACCUSTD	xc030509	1.0 MIX C LVL5 ACCUSTD	
+							+
xc4c0520.d	wXP090305-48	CwW	06-MAR-2009 06:01	ACCUSTD	xc030509	1.0 MIX C LVL3 ACCUSTD	
+							+
xc4c0521.d	wXP090305-52	CwW	06-MAR-2009 06:50	ACCUSTD	xc030509	1.0 MIX C LVL1 ACCUSTD	
+							+
xc4c0522.d	wXP090305-45	CwW	06-MAR-2009 07:39	ACCUSTD	xc030509	1.0 MIX C LVL6 ACCUSTD	
+							+
xc4c0523.d	wXP090305-47	CwW	06-MAR-2009 08:27	ACCUSTD	xc030509	1.0 MIX C LVL4 ACCUSTD	
+							+
xc4c0523RT.d	wXP090305-47	CwW	06-MAR-2009 08:27	ACCUSTD	xc030509	1.0 MIX C LVL4 Duse, for RT purpose only	
+							+
xc4c0524.d	wXP090305-49	CwW	06-MAR-2009 09:16	ACCUSTD	xc030509	1.0 MIX C LVL2 ACCUSTD	
+							+
xc4c0525.d	INST BLANK	CwW	06-MAR-2009 10:05	-----	xc030509	1.0 INST BLANK	
+							+
xc4c0526.d	wXP090306-02	CwW	06-MAR-2009 10:53	RESTEK	xc030509	1.0 MIX A ICV RESTEK	
+							+
xc4c0526A.d	wXP090306-02	CwW	06-MAR-2009 10:53	RESTEK	xc030509	1.0 MIX A CCV Pass	
+							+
xc4c0527.d	wXP090306-03	CwW	06-MAR-2009 11:42	RESTEK	xc030509	1.0 MIX B ICV RESTEK	
+							+
xc4c0527A.d	wXP090306-03	CwW	06-MAR-2009 11:42	RESTEK	xc030509	1.0 MIX B CCV Pass	
+							+
xc4c0528.d	wXP090306-04	CwW	06-MAR-2009 12:31	RESTEK	xc030509	1.0 MIX C ICV RESTEK	
+							+
xc4c0528A.d	wXP090306-04	CwW	06-MAR-2009 12:31	RESTEK	xc030509	1.0 MIX C CCV Pass, 87160 @ 27.540	
+							+
xc4c0529.d	INST BLANK	CwW	06-MAR-2009 13:19	-----	xc030509	1.0 INST BLANK	
+							+
xc4c0530.d	1201787998	CwW	06-MAR-2009 14:08	846144	225266	2.0 MB ex3c0305 & ex3c0513	
+							+
xc4c0531.d	225266007	CwW	06-MAR-2009 14:57	846144	225266	2.0 SSFL ex3c0308 & ex3c0516	
+							+

Instrument Batch: /chem/hplcd.i/xc030509.b

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Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
+								+
xc4c0532.d	INST BLANK	CwW	06-MAR-2009 15:45	-----	xc030509	1.0 INST BLANK		
+								+
xc4c0533.d	1201787972	CwW	06-MAR-2009 16:34	846135	225266	2.0 MB	ex3c0311	
+								+
xc4c0534.d	225266003	CwW	06-MAR-2009 17:23	846135	225266	2.0 SSFL	ex3c0314	
+								+
xc4c0535.d	225266004	CwW	06-MAR-2009 18:12	846135	225266	2.0 SSFL	ex3c0317	
+								+
xc4c0536.d	225266005	CwW	06-MAR-2009 19:00	846135	225266	2.0 SSFL	ex3c0318	
+								+
xc4c0537.d	INST BLANK	CwW	06-MAR-2009 19:49	-----	xc030509	1.0 INST BLANK		

xc4c0538.d	WXP090306-02	CWM	06-MAR-2009 20:37	RESTEK	xc030509	1.0 MIX A CCV	Pass	
xc4c0539.d	WXP090306-03	CWM	06-MAR-2009 21:26	RESTEK	xc030509	1.0 MIX B CCV	Pass	
xc4c0540.d	WXP090306-04	CWM	06-MAR-2009 22:15	RESTEK	xc030509	1.0 MIX C CCV	Pass, 86807 @ 27.554	
xc4c0541.d	INST BLANK	CWM	06-MAR-2009 23:03	-----	xc030509	1.0 INST BLANK		

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC D

DATE: 03/25/09 METHOD: 8330

OPERATOR: CWV

REVIEWED BY: *Ammy*

DATE: *03/26/09*

No. 14 on pg. 14

REF MAT#: 1075665, 1054169

HARDWARE CONFIGURATION & METHOD SUMMARY:
Extr. Injection Volume: 100 ul

Sequence Number: XC032509 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090325-02 & -03

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c2501.d	INST BLANK	CWV	25-MAR-2009 09:09	-----	xc032509		1.0 INST BLANK	
xc4c2502.d	INST BLANK	CWV	25-MAR-2009 09:58	-----	xc032509		1.0 INST BLANK	
xc4c2503.d	WXP090325-02	CWV	25-MAR-2009 10:46	RESTEK	xc032509		1.0 MIX A CCV Pass	
xc4c2504.d	WXP090325-03	CWV	25-MAR-2009 11:35	RESTEK	xc032509		1.0 MIX B CCV Pass, 91845 @ 27.526	
xc4c2505.d	INST BLANK	CWV	25-MAR-2009 12:24	-----	xc032509		1.0 INST BLANK	
xc4c2506.d	1201800791	CWV	25-MAR-2009 13:13	851503	226257-1		2.0 MB ex3c2305	
xc4c2507.d	226265002	CWV	25-MAR-2009 14:01	851503	226257-1		2.0 SNLS ex3c2308	
xc4c2508.d	INST BLANK	CWV	25-MAR-2009 14:50	-----	xc032509		1.0 INST BLANK	
xc4c2509.d	1201800732	CWV	25-MAR-2009 15:39	851476	226257		2.0 MB ex3c2311	
xc4c2510.d	226257006	CWV	25-MAR-2009 16:27	851476	226257		2.0 SNLS ex3c2317	
xc4c2511.d	WXP090325-02	CWV	25-MAR-2009 17:16	RESTEK	xc032509		1.0 MIX A CCV Pass	
xc4c2512.d	WXP090325-03	CWV	25-MAR-2009 18:05	RESTEK	xc032509		1.0 MIX B CCV Pass, 90892 @ 27.467	
xc4c2513.d	INST BLANK	CWV	25-MAR-2009 18:53	-----	xc032509		1.0 INST BLANK	

HPLC Explosive Analysis

**Explosives Narrative
Sandia National Labs (SNLS)
SDG 226257-1**

Method/Analysis Information

Procedure: Nitroaromatics and Nitramines by High Performance Liquid Chromatography (HPLC)
Analytical Method: SW846 3535/8330
Prep Method: SW846 Method 3535
Analytical Batch Number: 851503
Prep Batch Number: 851501

Sample Analysis

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

Sample ID	Client ID
226265002	087120-002
1201800791	Method Blank (MB)
1201800792	Laboratory Control Sample (LCS)
1201800793	Laboratory Control Sample Duplicate (LCSD)

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-033 REV# 16.

Raw data reports are processed and reviewed by the analyst using the Target software package. False positives have been removed from the Target quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

Due to software limitations, the Calibration Summary Form 6 may not indicate all the calibration files comprising the initial calibration. 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.

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Please note that the 'Cal Date' indicated on each quantitation report reflects the date and time of the most recent calibrated analyte(s) in the Target processing method. Since the laboratory may calibrate with multiple solutions on different days using the same processing method, the Target software will update the 'Cal Date' to the last calibration file, date and time. The correct dates and times for all calibration files are located on the Calibration History report in the Standard Data section in the data package.

The linear equation used in Target and indicated on the initial calibration summary form is not a conventional linear equation (slope intercept formula) and does not match the equation found in SW-846 method 8000B. The x and y axes are inversed in Target, so that the instrument response is treated as the independent variable (x) and the concentration ratio is treated as the dependent variable (y). The equation used in Target to calculate sample results is adjusted to account for the linear equation inversion and reciprocal slope. The adjusted calculation has been independently verified to produce valid results.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Calibration Verification Standard Requirements

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

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

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

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation

A matrix spike was not performed with this SDG in this batch.

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 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.

Sample Dilutions

According to the GEL SOP for Method 8330, all sample and QC extracts are diluted 1:2. Soil samples are diluted 1:2 with acidified calcium chloride solution. Water samples are diluted 1:2 with HPLC grade water. The samples in this SDG did not require any additional dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG except for dilutions and/or confirmations.

Miscellaneous Information**Nonconformance Documentation**

Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and/or samples may have required manual integrations due to software limitations.

Additional Comments

One or more analytes were detected whose concentration greatly differed between the primary and confirmation analysis (greater than 40% difference or RPD) in sample 226265002 (087120-002). Because both columns or detectors indicated an acceptable peak in the appropriate retention time window for these analytes, the analytes are reported as positive results. Due to the high percent difference or RPD between the two columns, it is indicated as such on the appropriate Form I/Certificate of Analysis (C of A)/Spike Recovery Report with a P qualifier. Those analytes reported with a percent difference or RPD greater than 40% are qualified as presumptive evidence of the presence of the material. When the percent difference or RPD is greater than 70%, an X qualifier is added to the P qualifier at the request of the client.

Water samples and associated QC were prepared with HPLC grade de-ionized water instead of acidified de-ionized water at the direction of the Quality Department.

The Form 8 is used only as a sequence of the analysis.

The Instrument Blank does not contain the surrogate.

Confirmation analysis was performed on some of the samples in this batch. The values reported are from the primary analysis. The confirmation analysis is used for qualitative purposes only. Confirmation of analyte(s) is shown with the generation of a Form 10 only when the data for the analyte(s) have met the acceptance criteria. The sample(s) in question first must be analyzed on both the primary and confirmation columns. After the data are evaluated and confirmation criteria have been met is a Form 10/Identification Summary generated. Otherwise the analyte is assigned a U qualifier or similar designation.

The following analytes co-elute in the confirmation analysis: 1) Peaks in each mix (A,B, C) separate, however co-elution does exist. When a standard containing all explosive analytes was analyzed, the following co-elution existed: a) the three Nitrotoluenes elute in a large, wide peak; b) 2-Amino-4,6-dinitrotoluene and 4-Amino-2,6-dinitrotoluene co-elute in one peak; and c) 2,4- and 2,6-Dinitrotoluene separate with a small valley. As a result some of these analytes may be flagged with a P qualifier. The co-elution from the confirmation analysis should be considered and the values as suspect to the sample.

This package is a regeneration of the original package with the addition of PETN to the analyte list.

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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 analyst, reviewer, and report specialist names 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 laboratory utilizes a high performance liquid chromatography (HPLC) instrument configuration for explosives analyses. The chromatographic hardware system consists several HP Model 1100 HPLC with programmable gradient pumping and a 100 ul loop injector for the primary system and a 100 ul loop injector for the confirmation system. The HPLC 1100 is coupled to a HP Model G1315A Diode Array UV detector which monitor absorbance at the following five wavelengths: 1) 214 nm; 2) 224 nm; 3) 235 nm; 4) 254 nm; 5) 264 nm.

The primary HPLC system is usually identified with either a designation of HPLC C or HPLC D, in the raw data printouts. The confirmation HPLC system is usually identified with a designation of HPLC C or HPLC D in the raw data printouts. The HP 1100 HPLC has a Column Switching Valve that enables this system to be used for primary analysis or confirmation analysis.

Chromatographic Columns

Chromatographic separation of nitroaromatic and nitramine components is accomplished through analysis on the following reversed phase columns:

Phenomenex Ultracarb C-18; 5 micron ODS (20) 250 x 4.6 mm

Confirmation of nitroaromatic and nitramine components, initially identified on one of the above columns, is accomplished through analysis on the following column:

Phenomenex Develosil CN-UG-5, 4.6 mm x 250 mm.

The primary column is used for quantitation while the confirmation column is for qualitative purposes only.

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: Stephen R. Mauer

Date: 01/20/09

Roadmap for SNLS 226257-1 HPLC_EXP

This roadmap was packaged by tif01298 on 03-31-2009, 17:39.

This roadmap was analyzed by cww on 04-20-2009, 13:21.

This roadmap was reviewed by hnm on 04-20-2009, 14:03.

Primary Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcc.i/x032309.b/ex3c2308.d	226265002	sample	23-MAR-2009	14:25	226257-1.sub	087120-002	2	851503	xc4c2507

Confirmation Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcd.i/x032509.b/xc4c2507.d	226265002	sample	25-MAR-2009	14:01	226257-1.sub	087120-002	2	851503	ex3c2308

Primary QC Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcc.i/x032309.b/ex3c2305.d	1201800791	mb	23-MAR-2009	12:32	226257-1.sub	XBLK01	2	851503	xc4c2506
☐	N	/chem/hplcc.i/x032309.b/ex3c2306.d	1201800792	lcs	23-MAR-2009	13:10	226257-1.sub	XBLK01LCS	2	851503	Pass
☐	N	/chem/hplcc.i/x032309.b/ex3c2307.d	1201800793	lcsd	23-MAR-2009	13:47	226257-1.sub	XBLK01LCSD	2	851503	Pass

Confirmation QC Sample Column

exclude	manual	datafile	smpid	sampletype	injdate	injtime	sublist	clientid	dilution	batchid	comment
☐	N	/chem/hplcd.i/x032509.b/xc4c2506.d	1201800791	mb	25-MAR-2009	13:13	226257-1.sub	XBLK01	2	851503	ex3c2305

QC Summary

Identification Summary

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SDG Number: 226257-1

Client ID: 087120-002

Lab Sample ID: 226265002

Data File: ex3c2308.d

Data File: xc4c2507.d

Inst: HPLCC.I

Inst: HPLCD.I

Column: C18 BDS

Column: Develosil CN

Analyzed: 23-MAR-09 14:25

Analyzed: 25-MAR-09 14:01

Analyte	Peak	RT	RT Window	Conc.	Ave Conc.	Units	RPD
Nitrobenzene							167
Column 1	1	14.9	14.7 - 15.2	.237		ug/L	
Column 2	1	13.2	13 - 13.9	2.6		ug/L	

STANDARDS DATA

SW846 8330 - Primary Calibration Standard Concentration Levels						
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
3,4-Dinitrotoluene	7.5	50	250	500	2500	5000
HMX	15	100	500	1000	5000	10000
RDX	15	100	500	1000	5000	10000
1,3,5-Trinitrobenzene	15	100	500	1000	5000	10000
1,3-Dinitrobenzene	15	100	500	1000	5000	10000
Nitrobenzene	15	100	500	1000	5000	10000
Tetryl	15	100	500	1000	5000	10000
Nitroglycerin		100	500	1000	5000	10000
2,4,6-Trinitrotoluene	15	100	500	1000	5000	10000
2-Amino-4,6-dinitrotoluene	15	100	500	1000	5000	10000
4-Amino-2,6-dinitrotoluene	15	100	500	1000	5000	10000
2,4-Dinitrotoluene	15	100	500	1000	5000	10000
2,6-Dinitrotoluene	15	100	500	1000	5000	10000
2-Nitrotoluene	15	100	500	1000	5000	10000
4-Nitrotoluene	15	100	500	1000	5000	10000
3-Nitrotoluene	15	100	500	1000	5000	10000
PETN		100	500	1000	5000	10000
CCV						500

SW846 8330 - Confirmation Calibration Standard Concentration Levels						
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
3,4-Dinitrotoluene	7.5	50	250	500	2500	5000
HMX	15	100	500	1000	5000	10000
RDX	15	100	500	1000	5000	10000
1,3,5-Trinitrobenzene	15	100	500	1000	5000	10000
1,3-Dinitrobenzene	15	100	500	1000	5000	10000
Nitrobenzene	15	100	500	1000	5000	10000
Tetryl	15	100	500	1000	5000	10000
Nitroglycerin		100	500	1000	5000	10000
2,4,6-Trinitrotoluene	15	100	500	1000	5000	10000
2-Amino-4,6-dinitrotoluene	15	100	500	1000	5000	10000
4-Amino-2,6-dinitrotoluene	15	100	500	1000	5000	10000
2,4-Dinitrotoluene	15	100	500	1000	5000	10000
2,6-Dinitrotoluene	15	100	500	1000	5000	10000
2-Nitrotoluene	15	100	500	1000	5000	10000
4-Nitrotoluene	15	100	500	1000	5000	10000
3-Nitrotoluene	15	100	500	1000	5000	10000
PETN		100	500	1000	5000	10000
CCV						500

All values are ng/ml without the prep factor.

8330 (02/09)

Report Date: 18-Feb-2009 17:09

Calibration History

Method : /chem/hplcc.i/x021809.b/8330-021809.m
Start Cal Date: 18-FEB-2009 10:46
End Cal Date : 18-FEB-2009 14:31

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 15.00000		
18-FEB-2009 12:38	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1805.d
Cal Level: 2 , Cal Amount: 50.00000		
18-FEB-2009 14:31	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1808.d
Cal Level: 3 , Cal Amount: 100.00000		
18-FEB-2009 12:01	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1804.d
Cal Level: 4 , Cal Amount: 500.00000		
18-FEB-2009 13:53	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1807.d
Cal Level: 5 , Cal Amount: 1000.00000		
18-FEB-2009 11:23	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1803.d
Cal Level: 6 , Cal Amount: 5000.00000		
18-FEB-2009 13:16	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1806.d
Cal Level: 7 , Cal Amount: 10000.00000		
18-FEB-2009 10:46	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1802.d

Continuing Calibration

Ccal Level Mode: GLOBAL LEVEL 11

Ccal Level: 11, Ccal Amount: 500		
18-FEB-2009 16:03	8330+PETN	/chem/hplcc.i/x021809.b/ex3b1810.d

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 18-FEB-2009 10:46
 End Cal Date : 18-FEB-2009 14:31
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcc.i/x021809.b/8330-021809.m
 Cal Date : 18-Feb-2009 17:06 cww
 Curve Type : Average

Calibration File Names:

Level 1: /chem/hplcc.i/x021809.b/ex3b1805.d
 Level 2: /chem/hplcc.i/x021809.b/ex3b1808.d
 Level 3: /chem/hplcc.i/x021809.b/ex3b1804.d
 Level 4: /chem/hplcc.i/x021809.b/ex3b1807.d
 Level 5: /chem/hplcc.i/x021809.b/ex3b1803.d
 Level 6: /chem/hplcc.i/x021809.b/ex3b1806.d
 Level 7: /chem/hplcc.i/x021809.b/ex3b1802.d

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
1 HMX	583 576	579	573	582	580	574	578	0.654
2 RDX	402 375	398	383	379	379	373	384	2.915
3 1,3,5-Trinitrobenzene	1001 1029	1028	1020	1041	1033	1028	1026	1.239
4 1,3-Dinitrobenzene	650 627	657	633	639	635	625	638	1.846
5 Tetryl	626 672	644	689	664	646	673	659	3.241
6 Nitrobenzene	497 491	498	503	499	496	487	496	1.114
9 2,4,6-Trinitrotoluene	618 595	614	603	618	609	594	607	1.651

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 18-FEB-2009 10:46
 End Cal Date : 18-FEB-2009 14:31
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcc.i/x021809.b/8330-021809.m
 Cal Date : 18-Feb-2009 17:06 cww
 Curve Type : Average

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
10 4-Amino-2,6-dinitrotoluene	765 752	790	751	797	774	757	769	2.353
11 2-Amino-4,6-dinitrotoluene	687 713	657	710	729	727	711	705	3.572
12 2,6-Dinitrotoluene	499 442	476	449	449	446	438	457	4.849
13 2,4-Dinitrotoluene	505 448	543	448	464	455	447	473	7.826
14 2-Nitrotoluene	419 432	434	421	427	454	427	431	2.759
15 4-Nitrotoluene	394 402	402	394	421	411	402	404	2.359
16 3-Nitrotoluene	494 517	498	555	518	517	515	516	3.846
17 PETN	+++++ 184	197	210	166	185	178	187	8.238
\$ 8 3,4-Dinitrotoluene	511 508	521	516	527	515	511	515	1.278

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcc.i Injection Date: 18-FEB-2009 16:03
 Lab File ID: ex3b1810.d Init. Cal. Date(s): 18-FEB-2009 18-FEB-2009
 Analysis Type: Init. Cal. Times: 10:46 14:31
 Lab Sample ID: WXP090218-01 Quant Type: ESTD
 Method: /chem/hplcc.i/x021809.b/8330-021809.m

COMPOUND	RRF / AMOUNT	RF500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
\$ 8 3,4-Dinitrotoluene	515	519	0.010	0.77679	15.00000	Averaged
1 HMX	578	540	0.010	-6.48786	15.00000	Averaged
2 RDX	384	375	0.010	-2.46267	15.00000	Averaged
3 1,3,5-Trinitrobenzene	1026	1008	0.010	-1.69651	15.00000	Averaged
4 1,3-Dinitrobenzene	638	627	0.010	-1.78521	15.00000	Averaged
5 Tetryl	659	638	0.010	-3.19758	15.00000	Averaged
6 Nitrobenzene	496	487	0.010	-1.69817	15.00000	Averaged
9 2,4,6-Trinitrotoluene	607	599	0.010	-1.29939	15.00000	Averaged
10 4-Amino-2,6-dinitrotoluene	769	726	0.010	-5.58191	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	705	619	0.010	-12.19332	15.00000	Averaged
12 2,6-Dinitrotoluene	457	443	0.010	-2.98054	15.00000	Averaged
13 2,4-Dinitrotoluene	473	452	0.010	-4.34044	15.00000	Averaged
14 2-Nitrotoluene	431	422	0.010	-2.00848	15.00000	Averaged
15 4-Nitrotoluene	404	416	0.010	3.08828	15.00000	Averaged
16 3-Nitrotoluene	516	504	0.010	-2.32557	15.00000	Averaged
17 PETN	187	170	0.010	-8.75361	15.00000	Averaged

Average %D / Drift Results.
 =====
 Calculated Average %D/Drift = 3.79227
 Maximum Average %D/Drift = 15.00000
 * Passed Average %D/Drift Test.

Report Date: 06-Mar-2009 17:40

Calibration History

Method : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
Start Cal Date: 05-MAR-2009 15:25
End Cal Date : 06-MAR-2009 09:16

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 15.00000		
06-MAR-2009 06:50	MixC+	/chem/hplcd.i/x030509.b/x04c0521.d
06-MAR-2009 00:20	MixB	/chem/hplcd.i/x030509.b/x04c0513.d
05-MAR-2009 17:51	MixA	/chem/hplcd.i/x030509.b/x04c0505.d
Cal Level: 2 , Cal Amount: 50.00000		
06-MAR-2009 09:16	MixC+	/chem/hplcd.i/x030509.b/x04c0524.d
06-MAR-2009 02:46	MixB	/chem/hplcd.i/x030509.b/x04c0516.d
05-MAR-2009 20:17	MixA	/chem/hplcd.i/x030509.b/x04c0508.d
Cal Level: 3 , Cal Amount: 100.00000		
06-MAR-2009 06:01	MixC+	/chem/hplcd.i/x030509.b/x04c0520.d
05-MAR-2009 23:32	MixB	/chem/hplcd.i/x030509.b/x04c0512.d
05-MAR-2009 17:03	MixA	/chem/hplcd.i/x030509.b/x04c0504.d
Cal Level: 4 , Cal Amount: 500.00000		
06-MAR-2009 08:27	MixC+	/chem/hplcd.i/x030509.b/x04c0523.d
06-MAR-2009 01:58	MixB	/chem/hplcd.i/x030509.b/x04c0515.d
05-MAR-2009 19:29	MixA	/chem/hplcd.i/x030509.b/x04c0507.d
Cal Level: 5 , Cal Amount: 1000.00000		
06-MAR-2009 05:13	MixC+	/chem/hplcd.i/x030509.b/x04c0519.d
05-MAR-2009 22:43	MixB	/chem/hplcd.i/x030509.b/x04c0511.d
05-MAR-2009 16:14	MixA	/chem/hplcd.i/x030509.b/x04c0503.d
Cal Level: 6 , Cal Amount: 5000.00000		
06-MAR-2009 07:39	MixC+	/chem/hplcd.i/x030509.b/x04c0522.d
06-MAR-2009 01:09	MixB	/chem/hplcd.i/x030509.b/x04c0514.d
05-MAR-2009 18:40	MixA	/chem/hplcd.i/x030509.b/x04c0506.d
Cal Level: 7 , Cal Amount: 10000.00000		
06-MAR-2009 04:24	MixC+	/chem/hplcd.i/x030509.b/x04c0518.d
05-MAR-2009 21:55	MixB	/chem/hplcd.i/x030509.b/x04c0510.d
05-MAR-2009 15:25	MixA	/chem/hplcd.i/x030509.b/x04c0502.d

Continuing Calibration
Ccal Level Mode: GLOBAL LEVEL 11

Ccal Level: 11, Ccal Amount: 500	
=====	
06-MAR-2009 12:31 MixC+	/chem/hplcd.i/xc030509.b/xc4c0528.d
+-----+	
Ccal Level: 11, Ccal Amount: 500	
=====	
06-MAR-2009 11:42 MixB+	/chem/hplcd.i/xc030509.b/xc4c0527.d
+-----+	
Ccal Level: 11, Ccal Amount: 500	
=====	
06-MAR-2009 10:53 MixA+	/chem/hplcd.i/xc030509.b/xc4c0526.d
+-----+	

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 05-MAR-2009 15:25
 End Cal Date : 06-MAR-2009 09:16
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
 Cal Date : 06-Mar-2009 17:32 cww
 Curve Type : Average

Calibration File Names:

Level 1: /chem/hplcd.i/x030509.b/x04c0521.d
 Level 2: /chem/hplcd.i/x030509.b/x04c0524.d
 Level 3: /chem/hplcd.i/x030509.b/x04c0520.d
 Level 4: /chem/hplcd.i/x030509.b/x04c0523.d
 Level 5: /chem/hplcd.i/x030509.b/x04c0519.d
 Level 6: /chem/hplcd.i/x030509.b/x04c0522.d
 Level 7: /chem/hplcd.i/x030509.b/x04c0518.d

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
1 Nitrobenzene	429 347	361	351	350	350	347	362	8.274
2 1,3,5-Trinitrobenzene	245 208	204	206	205	214	203	212	7.015
3 1,3-Dinitrobenzene	528 489	526	498	491	493	490	502	3.447
4 4-Nitrotoluene	314 267	288	275	266	274	267	279	6.214
5 2-Nitrotoluene	227 195	172	175	177	180	180	186	10.326
6 3-Nitrotoluene	376 365	384	376	372	375	369	374	1.613
7 RDX	285 239	259	250	248	251	249	255	5.805

GEL Laboratories LLC
INITIAL CALIBRATION DATA

Start Cal Date : 05-MAR-2009 15:25
 End Cal Date : 06-MAR-2009 09:16
 Quant Method : ESTD
 Origin : Disabled
 Target Version : 3.50
 Integrator : Falcon
 Method file : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
 Cal Date : 06-Mar-2009 17:32 cww
 Curve Type : Average

Compound	15.000 Level 1	50.000 Level 2	100.000 Level 3	500.000 Level 4	1000.000 Level 5	5000.000 Level 6	RRF	% RSD
	1.000e+04 Level 7							
8 2,4-Dinitrotoluene	380 405	418	417	408	415	408	407	3.159
9 2,6-Dinitrotoluene	377 331	314	312	343	333	328	334	6.538
10 2,4,6-Trinitrotoluene	417 405	407	390	412	413	411	408	2.194
11 2-Amino-4,6-dinitrotoluene	528 495	526	509	500	505	498	509	2.615
12 4-Amino-2,6-dinitrotoluene	536 498	524	510	504	505	498	511	2.801
14 HMX	371 317	328	327	320	321	318	329	5.775
15 Nitroglycerin	+++++ 108	114	117	108	110	109	111	3.358
16 Tetryl	422 421	429	427	418	432	423	425	1.163
17 PETN	+++++ 128	113	126	132	132	129	126	5.526
\$ 13 3,4-Dinitrotoluene	374 369	382	376	370	379	369	374	1.427

Data File: /chem/hplcd.i/xc030509.b/xc4c0526.d
Report Date: 06-Mar-2009 17:31

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 06-MAR-2009 10:53
Lab File ID: xc4c0526.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090306-02 Quant Type: ESTD
Method: /chem/hplcd.i/xc030509.b/8330CN-XC030509.m

COMPOUND	RRF / AMOUNT	RF500	MIN			MAX	CURVE TYPE
			RRF	%D / %DRIFT	%D / %DRIFT		
1 Nitrobenzene	362	343	0.010	-5.26708	15.00000	Averaged	
5 2-Nitrotoluene	186	175	0.010	-6.07168	15.00000	Averaged	
7 RDX	255	247	0.010	-2.92997	15.00000	Averaged	
9 2,6-Dinitrotoluene	334	337	0.010	1.10365	15.00000	Averaged	
10 2,4,6-Trinitrotoluene	408	425	0.010	4.22783	15.00000	Averaged	
12 4-Amino-2,6-dinitrotoluene	511	528	0.010	3.41802	15.00000	Averaged	
\$ 13 3,4-Dinitrotoluene	374	352	0.010	-6.00032	15.00000	Averaged	
14 HMX	329	299	0.010	-9.14226	15.00000	Averaged	

Data File: /chem/hplcd.i/xc030509.b/xc4c0527.d
Report Date: 06-Mar-2009 17:32

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 06-MAR-2009 11:42
Lab File ID: xc4c0527.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090306-03 Quant Type: ESTD
Method: /chem/hplcd.i/xc030509.b/8330CN-XC030509.m

COMPOUND	_____	MIN	MAX		CURVE TYPE
	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	
=====	=====	=====	=====	=====	=====
3 1,3-Dinitrobenzene	502	515	0.010	2.56328	15.00000 Averaged
6 3-Nitrotoluene	374	375	0.010	0.37792	15.00000 Averaged
8 2,4-Dinitrotoluene	407	423	0.010	3.92792	15.00000 Averaged
11 2-Amino-4,6-dinitrotoluene	509	518	0.010	1.85719	15.00000 Averaged
\$ 13 3,4-Dinitrotoluene	374	357	0.010	-4.50446	15.00000 Averaged
17 PETN	126	130	0.010	2.75857	15.00000 Averaged

GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcc.i Injection Date: 23-MAR-2009 11:18
 Lab File ID: ex3c2303.d Init. Cal. Date(s): 18-FEB-2009 18-FEB-2009
 Analysis Type: Init. Cal. Times: 10:46 14:31
 Lab Sample ID: WXP090323-01 Quant Type: ESTD
 Method: /chem/hplcc.i/x032309.b/8330-021809.m

COMPOUND	RRF / AMOUNT	RF500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
\$ 8 3,4-Dinitrotoluene	515	518	0.010	0.41786	15.00000	Averaged
1 HMX	578	546	0.010	-5.52071	15.00000	Averaged
2 RDX	384	375	0.010	-2.39502	15.00000	Averaged
3 1,3,5-Trinitrobenzene	1026	1014	0.010	-1.11042	15.00000	Averaged
4 1,3-Dinitrobenzene	638	644	0.010	0.88541	15.00000	Averaged
5 Tetryl	659	643	0.010	-2.44268	15.00000	Averaged
6 Nitrobenzene	496	496	0.010	-0.04892	15.00000	Averaged
9 2,4,6-Trinitrotoluene	607	603	0.010	-0.65122	15.00000	Averaged
10 4-Amino-2,6-dinitrotoluene	769	696	0.010	-9.50164	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	705	628	0.010	-10.95851	15.00000	Averaged
12 2,6-Dinitrotoluene	457	448	0.010	-1.92631	15.00000	Averaged
13 2,4-Dinitrotoluene	473	440	0.010	-6.89073	15.00000	Averaged
14 2-Nitrotoluene	431	422	0.010	-1.91649	15.00000	Averaged
15 4-Nitrotoluene	404	413	0.010	2.36114	15.00000	Averaged
16 3-Nitrotoluene	516	534	0.010	3.37032	15.00000	Averaged
17 PETN	187	187	0.010	0.33567	15.00000	Averaged

Average %D / Drift Results.
 =====
 Calculated Average %D/Drift = 3.17082
 Maximun Average %D/Drift = 15.00000
 * Passed Average %D/Drift Test.

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcc.i Injection Date: 23-MAR-2009 15:02
 Lab File ID: ex3c2309.d Init. Cal. Date(s): 18-FEB-2009 18-FEB-2009
 Analysis Type: Init. Cal. Times: 10:46 14:31
 Lab Sample ID: WXP090323-01 Quant Type: ESTD
 Method: /chem/hplcc.i/x032309.b/8330-021809.m

COMPOUND	RRF / AMOUNT	RF500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
\$ 8 3,4-Dinitrotoluene	515	523	0.010	1.43840	15.00000	Averaged
1 HMX	578	547	0.010	-5.40859	15.00000	Averaged
2 RDX	384	376	0.010	-2.09424	15.00000	Averaged
3 1,3,5-Trinitrobenzene	1026	1015	0.010	-1.07552	15.00000	Averaged
4 1,3-Dinitrobenzene	638	637	0.010	-0.09632	15.00000	Averaged
5 Tetryl	659	640	0.010	-2.87232	15.00000	Averaged
6 Nitrobenzene	496	501	0.010	1.08082	15.00000	Averaged
9 2,4,6-Trinitrotoluene	607	605	0.010	-0.42495	15.00000	Averaged
10 4-Amino-2,6-dinitrotoluene	769	697	0.010	-9.43042	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	705	626	0.010	-11.22948	15.00000	Averaged
12 2,6-Dinitrotoluene	457	446	0.010	-2.46677	15.00000	Averaged
13 2,4-Dinitrotoluene	473	445	0.010	-5.80301	15.00000	Averaged
14 2-Nitrotoluene	431	423	0.010	-1.75111	15.00000	Averaged
15 4-Nitrotoluene	404	400	0.010	-0.89667	15.00000	Averaged
16 3-Nitrotoluene	516	538	0.010	4.22983	15.00000	Averaged
17 PETN	187	184	0.010	-1.24885	15.00000	Averaged

Average %D / Drift Results.
 =====
 Calculated Average %D/Drift = 3.22171
 Maximum Average %D/Drift = 15.00000
 * Passed Average %D/Drift Test.

GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 10:46
Lab File ID: xc4c2503.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-02 Quant Type: ESTD
Method: /chem/hplcd.i/xc032509.b/8330CN-XC030509.m

		_____		MIN		MAX	
COMPOUND	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE	
=====	=====	=====	=====	=====	=====	=====	=====
1 Nitrobenzene	362	344	0.010	-4.97780	15.00000	Averaged	
5 2-Nitrotoluene	186	175	0.010	-6.05345	15.00000	Averaged	
7 RDX	255	249	0.010	-2.30187	15.00000	Averaged	
9 2,6-Dinitrotoluene	334	338	0.010	1.17256	15.00000	Averaged	
10 2,4,6-Trinitrotoluene	408	420	0.010	2.92021	15.00000	Averaged	
12 4-Amino-2,6-dinitrotoluene	511	532	0.010	4.26209	15.00000	Averaged	
\$ 13 3,4-Dinitrotoluene	374	353	0.010	-5.67206	15.00000	Averaged	
14 HMX	329	300	0.010	-8.70601	15.00000	Averaged	

Data File: /chem/hplcd.i/xc032509.b/xc4c2504.d
Report Date: 20-Apr-2009 13:28

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 11:35
Lab File ID: xc4c2504.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-03 Quant Type: ESTD
Method: /chem/hplcd.i/xc032509.b/8330CN-XC030509.m

COMPOUND	RRF / AMOUNT		MIN		MAX		CURVE TYPE
	RRF	AMOUNT	RF500	RRF	%D / %DRIFT	%D / %DRIFT	
3 1,3-Dinitrobenzene	502		518	0.010	3.10729	15.00000	Averaged
6 3-Nitrotoluene	374		380	0.010	1.74920	15.00000	Averaged
8 2,4-Dinitrotoluene	407		433	0.010	6.28192	15.00000	Averaged
11 2-Amino-4,6-dinitrotoluene	509		525	0.010	3.17644	15.00000	Averaged
\$ 13 3,4-Dinitrotoluene	374		367	0.010	-1.79608	15.00000	Averaged
17 PETN	126		136	0.010	7.57474	15.00000	Averaged

Data File: /chem/hplcd.i/xc032509.b/xc4c2511.d
Report Date: 27-Mar-2009 16:11

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 17:16
Lab File ID: xc4c2511.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-02 Quant Type: ESTD
Method: /chem/hplcd.i/xc032509.b/8330CN-XC030509.m

		_____		MIN		MAX	
COMPOUND	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE	
=====	=====	=====	=====	=====	=====	=====	=====
1 Nitrobenzene	362	337	0.010	-6.87413	15.00000	Averaged	
5 2-Nitrotoluene	186	176	0.010	-5.39391	15.00000	Averaged	
7 RDX	255	252	0.010	-1.02447	15.00000	Averaged	
9 2,6-Dinitrotoluene	334	341	0.010	2.16066	15.00000	Averaged	
10 2,4,6-Trinitrotoluene	408	424	0.010	4.02828	15.00000	Averaged	
12 4-Amino-2,6-dinitrotoluene	511	531	0.010	3.90762	15.00000	Averaged	
\$ 13 3,4-Dinitrotoluene	374	352	0.010	-5.90195	15.00000	Averaged	
14 HMX	329	301	0.010	-8.50888	15.00000	Averaged	

Data File: /chem/hplcd.i/x032509.b/x04c2512.d
Report Date: 27-Mar-2009 16:11

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GEL Laboratories LLC

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplcd.i Injection Date: 25-MAR-2009 18:05
Lab File ID: x04c2512.d Init. Cal. Date(s): 05-MAR-2009 06-MAR-2009
Analysis Type: SOIL Init. Cal. Times: 15:25 09:16
Lab Sample ID: WXP090325-03 Quant Type: ESTD
Method: /chem/hplcd.i/x032509.b/8330CN-XC030509.m

COMPOUND	_____	MIN	MAX		CURVE TYPE
	RRF / AMOUNT	RF500	RRF	%D / %DRIFT	
=====	=====	=====	=====	=====	=====
3 1,3-Dinitrobenzene	502	519	0.010	3.34226	Averaged
6 3-Nitrotoluene	374	377	0.010	0.96431	Averaged
8 2,4-Dinitrotoluene	407	433	0.010	6.35754	Averaged
11 2-Amino-4,6-dinitrotoluene	509	527	0.010	3.55236	Averaged
\$ 13 3,4-Dinitrotoluene	374	364	0.010	-2.81506	Averaged
17 PETN	126	133	0.010	5.41173	Averaged
=====	=====	=====	=====	=====	=====

Analytical Sequence

Page 1 of 1

Lab Name: General Engineering Labortories LLC. **Client SDG:** 226257-1**GC Column:** C18 BDS**Init. Calibration Dates:**18-FEB-09 10:46 – 18-FEB-09 14:31**Instrument ID:** HPLCC.

**Analytical Sequence for Blanks, Samples,
and Standards is given below:**

Sample Number	Lab Sample ID	Analysis Date/Time
XIBLK01	INST BLANK	23-MAR-09 10:03
XIBLK02	INST BLANK	23-MAR-09 10:40
XSTD500	WXP090323-01	23-MAR-09 11:18
XIBLK03	INST BLANK	23-MAR-09 11:55
XBLK01	1201800791	23-MAR-09 12:32
XBLK01LCS	1201800792	23-MAR-09 13:10
XBLK01LCSD	1201800793	23-MAR-09 13:47
087120-002	226265002	23-MAR-09 14:25
XSTD500	WXP090323-01	23-MAR-09 15:02
XIBLK04	INST BLANK	23-MAR-09 15:39

Column used to flag retention time values with an asterisk.

Analytical Sequence

Page 1 of 1

Lab Name: General Engineering Labortories LLC. Client SDG: 226257-1

GC Column: Develosil CN

Init. Calibration Dates: 05-MAR-09 15:25 – 06-MAR-09 02:4

Instrument ID: HPLCD.

Analytical Sequence for Blanks, Samples,
and Standards is given below:

Sample Number	Lab Sample ID	Analysis Date/Time
XCIBLK01	INST BLANK	25-MAR-09 09:09
XCIBLK02	INST BLANK	25-MAR-09 09:58
XCSTD500	WXP090325-02	25-MAR-09 10:46
XCSTD500	WXP090325-03	25-MAR-09 11:35
XCIBLK03	INST BLANK	25-MAR-09 12:24
XBLK01	1201800791	25-MAR-09 13:13
087120-002	226265002	25-MAR-09 14:01
XCIBLK04	INST BLANK	25-MAR-09 14:50
ZZZZZZZ	ZZZZZZZ	25-MAR-09 15:39
ZZZZZZZ	ZZZZZZZ	25-MAR-09 16:27
XCSTD500	WXP090325-02	25-MAR-09 17:16
XCSTD500	WXP090325-03	25-MAR-09 18:05

Column used to flag retention time values with an asterisk.

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x021809.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 18-Feb-2009 13:53 Number of Cpnds : 16
 Data Type : LC 3d DATA

ICAL

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.273	5.240-5.306	5.780e+02	224.00
2 RDX	7.960	7.846-8.074	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.823	10.700-10.946	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.137	12.924-13.350	6.381e+02	254.00
5 Tetryl	14.150	13.877-14.423	6.592e+02	224.00
6 Nitrobenzene	14.920	14.701-15.139	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.107	15.786-16.428	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.073	16.809-17.337	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.607	17.175-18.039	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.517	18.037-18.997	7.049e+02	224.00
12 2,6-Dinitrotoluene	19.840	19.471-20.209	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.447	20.042-20.852	4.727e+02	214.00
14 2-Nitrotoluene	24.147	23.724-24.570	4.305e+02	214.00
15 4-Nitrotoluene	25.730	25.262-26.198	4.038e+02	214.00
16 3-Nitrotoluene	27.763	27.253-28.273	5.163e+02	214.00
17 PETN	28.913	28.433-29.393	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x032309.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 23-Mar-2009 11:18 Number of Cpnds : 16
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.284	5.250-5.316	5.780e+02	224.00
2 RDX	7.987	7.873-8.101	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.860	10.737-10.983	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.187	12.974-13.400	6.381e+02	254.00
5 Tetryl	14.204	13.931-14.476	6.592e+02	224.00
6 Nitrobenzene	14.963	14.745-15.182	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.174	15.852-16.494	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.143	16.880-17.407	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.744	17.311-18.175	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.663	18.183-19.143	7.049e+02	224.00
12 2,6-Dinitrotoluene	19.937	19.568-20.306	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.553	20.148-20.959	4.727e+02	214.00
14 2-Nitrotoluene	24.237	23.814-24.660	4.305e+02	214.00
15 4-Nitrotoluene	25.850	25.382-26.318	4.038e+02	214.00
16 3-Nitrotoluene	27.884	27.373-28.393	5.163e+02	214.00
17 PETN	28.937	28.457-29.417	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x032309.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 23-Mar-2009 15:02 Number of Cpnds : 16
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.293	5.260-5.325	5.780e+02	224.00
2 RDX	8.002	7.888-8.117	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.876	10.753-10.999	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.203	12.989-13.415	6.381e+02	254.00
5 Tetryl	14.232	13.960-14.505	6.592e+02	224.00
6 Nitrobenzene	14.973	14.754-15.191	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.203	15.882-16.523	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.172	16.909-17.436	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.782	17.351-18.215	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.709	18.229-19.189	7.049e+02	224.00
12 2,6-Dinitrotoluene	19.973	19.604-20.341	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.593	20.188-20.997	4.727e+02	214.00
14 2-Nitrotoluene	24.273	23.849-24.695	4.305e+02	214.00
15 4-Nitrotoluene	25.889	25.421-26.357	4.038e+02	214.00
16 3-Nitrotoluene	27.926	27.416-28.436	5.163e+02	214.00
17 PETN	29.029	28.549-29.509	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcc.i/x032309.b/8330-021809.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 23-Mar-2009 21:54 Number of Cpnds : 16
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 HMX	5.294	5.261-5.327	5.780e+02	224.00
2 RDX	8.010	7.896-8.124	3.843e+02	224.00
3 1,3,5-Trinitrobenzene	10.894	10.771-11.017	1.026e+03	224.00
4 1,3-Dinitrobenzene	13.234	13.021-13.447	6.381e+02	254.00
5 Tetryl	14.270	13.997-14.543	6.592e+02	224.00
6 Nitrobenzene	15.020	14.801-15.239	4.959e+02	264.00
\$ 8 3,4-Dinitrotoluene	16.250	15.929-16.571	5.154e+02	214.00
9 2,4,6-Trinitrotoluene	17.214	16.950-17.478	6.072e+02	224.00
10 4-Amino-2,6-dinitrotoluene	17.827	17.395-18.259	7.694e+02	224.00
11 2-Amino-4,6-dinitrotoluene	18.747	18.267-19.227	7.049e+02	224.00
12 2,6-Dinitrotoluene	20.017	19.648-20.386	4.570e+02	214.00
13 2,4-Dinitrotoluene	20.630	20.225-21.035	4.727e+02	214.00
14 2-Nitrotoluene	24.327	23.904-24.750	4.305e+02	214.00
15 4-Nitrotoluene	25.954	25.486-26.422	4.038e+02	214.00
16 3-Nitrotoluene	27.990	27.480-28.500	5.163e+02	214.00
17 PETN	29.060	28.580-29.540	1.867e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcd.i/x030509.b/8330CN-XC030509.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 05-Mar-2009 19:29,01:58,08:27 Number of Cpnds : 17
 Data Type : LC 3d DATA

ICAL

Compound	RT	RT Window	RF	W1/ch
1 Nitrobenzene	13.539	13.080-13.998	3.623e+02	264.00
2 1,3,5-Trinitrobenzene	14.246	13.829-14.663	2.122e+02	264.00
3 1,3-Dinitrobenzene	15.054	14.508-15.600	5.022e+02	235.00
4 4-Nitrotoluene	20.626	19.978-21.274	2.789e+02	214.00
5 2-Nitrotoluene	20.922	20.160-21.684	1.865e+02	254.00
6 3-Nitrotoluene	21.241	20.554-21.928	3.738e+02	214.00
7 RDX	21.879	21.006-22.752	2.547e+02	235.00
8 2,4-Dinitrotoluene	22.774	22.123-23.425	4.073e+02	254.00
9 2,6-Dinitrotoluene	23.862	23.088-24.636	3.338e+02	214.00
10 2,4,6-Trinitrotoluene	24.805	24.044-25.567	4.079e+02	235.00
11 2-Amino-4,6-dinitrotoluene	26.074	25.423-26.725	5.086e+02	224.00
12 4-Amino-2,6-dinitrotoluene	26.429	25.670-27.188	5.106e+02	224.00
\$ 13 3,4-Dinitrotoluene	27.546	26.970-28.122	3.741e+02	214.00
14 HMX	28.722	27.924-29.520	3.287e+02	235.00
15 Nitroglycerin	29.570	28.829-30.311	1.109e+02	214.00
16 Tetryl	32.240	31.457-33.023	4.246e+02	224.00
17 PETN	38.531	38.120-38.942	1.265e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcd.i/xc032509.b/8330CN-XC030509.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 25-Mar-2009 10:46 & 11:35 Number of Cpnds : 17
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 Nitrobenzene	13.464	13.005-13.923	3.623e+02	264.00
3 1,3-Dinitrobenzene	14.963	14.417-15.509	5.022e+02	235.00
5 2-Nitrotoluene	20.891	20.129-21.653	1.865e+02	254.00
6 3-Nitrotoluene	21.200	20.513-21.887	3.738e+02	214.00
7 RDX	21.827	20.954-22.700	2.547e+02	235.00
8 2,4-Dinitrotoluene	22.710	22.059-23.361	4.073e+02	254.00
9 2,6-Dinitrotoluene	23.834	23.060-24.608	3.338e+02	214.00
10 2,4,6-Trinitrotoluene	24.734	23.972-25.496	4.079e+02	235.00
11 2-Amino-4,6-dinitrotoluene	26.043	25.392-26.694	5.086e+02	224.00
12 4-Amino-2,6-dinitrotoluene	26.414	25.655-27.173	5.106e+02	224.00
\$ 13 3,4-Dinitrotoluene	27.526	26.951-28.102	3.741e+02	214.00
14 HMX	28.691	27.893-29.489	3.287e+02	235.00
17 PETN	38.500	38.089-38.911	1.265e+02	214.00

GEL Laboratories LLC

COMPOUND LISTING

Method file : /chem/hplcd.i/xc032509.b/8330CN-XC030509.m
 Quant Method : ESTD Target Version : 3.50
 Inj. Date : 25-Mar-2009 17:16 & 18:05 Number of Cpnds : 17
 Data Type : LC 3d DATA

Compound	RT	RT Window	RF	W1/ch
1 Nitrobenzene	13.300	12.841-13.759	3.623e+02	264.00
3 1,3-Dinitrobenzene	14.829	14.283-15.375	5.022e+02	235.00
5 2-Nitrotoluene	20.817	20.055-21.579	1.865e+02	254.00
6 3-Nitrotoluene	21.102	20.415-21.789	3.738e+02	214.00
7 RDX	21.750	20.877-22.623	2.547e+02	235.00
8 2,4-Dinitrotoluene	22.615	21.964-23.266	4.073e+02	254.00
9 2,6-Dinitrotoluene	23.773	22.999-24.547	3.338e+02	214.00
10 2,4,6-Trinitrotoluene	24.637	23.875-25.399	4.079e+02	235.00
11 2-Amino-4,6-dinitrotoluene	25.992	25.341-26.643	5.086e+02	224.00
12 4-Amino-2,6-dinitrotoluene	26.347	25.588-27.106	5.106e+02	224.00
\$ 13 3,4-Dinitrotoluene	27.469	26.893-28.045	3.741e+02	214.00
14 HMX	28.647	27.849-29.445	3.287e+02	235.00
17 PETN	38.489	38.078-38.900	1.265e+02	214.00

Miscellaneous Data

Prep Logbook

Nitroaromatics and Nitramines by High Performance Liquid Chromatography (HPLC)

Batch ID: 851501
Analyst: James Allnutt
Method: SW846 Method 3535

Verified by: _____

Lab SOP: GL-OA-E-033 REV# 16
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Initial Volume (mL)	Ph 1	Final Volume (mL)	Prepped Factor (mL/mL)
1201800791 MB	20-MAR-2009 08:04:18	770	5	5	0.00649
1201800792 LCS	20-MAR-2009 08:04:18	770	5	5	0.00649
1201800793 LCSD	20-MAR-2009 08:04:18	770	5	5	0.00649
226265002	20-MAR-2009 08:04:18	770	5	5	0.00649

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1201800792	8330 PETN LCS 100ppm	IXP090123-01	.05	mL	SPE cartridges: 003238344A
LCSD	1201800793	8330 PETN LCS 100ppm	IXP090123-01	.05	mL	
SURR	All	3,4-Dinitrotoluene (8330 Surr.) 100ppm	IXP090311-02	.025	mL	

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC C

DATE: 02/18/09 METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *Shirley*

DATE: 02/18/09

HARDWARE CONFIGURATION & METHOD SUMMARY: No.14 on pg.14 REF MAT#: 1075665,1075398

Extr. Injection Volume: 100 ul

Sequence Number: X021809 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090218-01

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
ex3b1801.d	INST BLANK	CWW	18-FEB-2009 10:08	-----	x021809	1.0	INST BLK	
ex3b1802.d	WXP090218-11	CWW	18-FEB-2009 10:46	ABS-ULTRA	x021809	1.0	ICAL LVL7	ABS-ULTRA
ex3b1803.d	WXP090218-13	CWW	18-FEB-2009 11:23	ABS-ULTRA	x021809	1.0	ICAL LVL5	ABS-ULTRA
ex3b1804.d	WXP090218-15	CWW	18-FEB-2009 12:01	ABS-ULTRA	x021809	1.0	ICAL LVL3	ABS-ULTRA
ex3b1805.d	WXP090218-17	CWW	18-FEB-2009 12:38	ABS-ULTRA	x021809	1.0	ICAL LVL1	ABS-ULTRA
ex3b1806.d	WXP090218-12	CWW	18-FEB-2009 13:16	ABS-ULTRA	x021809	1.0	ICAL LVL6	ABS-ULTRA
ex3b1807.d	WXP090218-14	CWW	18-FEB-2009 13:53	ABS-ULTRA	x021809	1.0	ICAL LVL4	ABS-ULTRA
ex3b1807RT.d	WXP090218-14	CWW	18-FEB-2009 13:53	ABS-ULTRA	x021809	1.0	ICAL LVL4	Duse, for ICAL RT purpose
ex3b1808.d	WXP090218-16	CWW	18-FEB-2009 14:31	ABS-ULTRA	x021809	1.0	ICAL LVL2	ABS-ULTRA
ex3b1809.d	INST BLANK	CWW	18-FEB-2009 15:26	-----	x021809	1.0	INST BLK	
ex3b1810.d	WXP090218-01	CWW	18-FEB-2009 16:03	ACCUSTD	x021809	1.0	ICV	ACCUSTD
ex3b1810A.d	WXP090218-01	CWW	18-FEB-2009 16:03	ACCUSTD	x021809	1.0	ICV	Pass, 259710 @ 16.114
ex3b1811.d	INST BLANK	CWW	18-FEB-2009 16:41	-----	x021809	1.0	INST BLK	
ex3b1812.d	1201777705	CWW	18-FEB-2009 17:18	841887	224142	2.0	MB	Duse (RE) xc4b1909
ex3b1813.d	1201777706	CWW	18-FEB-2009 17:55	841887	224142	2.0	LCS	Duse (RE) Pass
ex3b1814.d	1201777709	CWW	18-FEB-2009 18:33	841887	224142	2.0	LCSD	Duse (RE) Pass
ex3b1815.d	1224142002	CWW	18-FEB-2009 19:10	841887	224142	2.0	PNTX	Duse (RE) xc4b1910 Confirms high surrogate of ex3b1205

Instrument Batch: /chem/hplcc.i/x021809.b

Page: 1

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
ex3b1816.d	INST BLANK	CWW	18-FEB-2009 19:48	-----	x021809	1.0	INST BLK	

ex3b1817.d	1201777179	CwW	18-FEB-2009 20:25	841624	224375		2.0 MB	xc4b1912	
+	+	+	+	+	+	+	+	+	+
ex3b1818.d	1201777180	CwW	18-FEB-2009 21:02	841624	224375		2.0 LCS	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1819.d	1201777183	CwW	18-FEB-2009 21:40	841624	224375		2.0 LCSD	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1820.d	224375013	CwW	18-FEB-2009 22:17	841624	224375		2.0 SSFL	xc4b1913	
+	+	+	+	+	+	+	+	+	+
ex3b1821.d	WXP090218-01	CwW	18-FEB-2009 22:55	ACCUSTD	x021809		1.0 CCV	Pass, 257666 @ 16.114	
+	+	+	+	+	+	+	+	+	+
ex3b1822.d	INST BLANK	CwW	18-FEB-2009 23:32	-----	x021809		1.0 INST BLK		
+	+	+	+	+	+	+	+	+	+
ex3b1823.d	1201777146	CwW	19-FEB-2009 00:10	841616	224375		2.0 MB	xc4b1915	
+	+	+	+	+	+	+	+	+	+
ex3b1824.d	1201777147	CwW	19-FEB-2009 00:47	841616	224375		2.0 LCS	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1825.d	224375003	CwW	19-FEB-2009 01:25	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1826.d	224375004	CwW	19-FEB-2009 02:02	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1827.d	1201777148	CwW	19-FEB-2009 02:40	841616	224375		2.0 004MS	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1828.d	1201777149	CwW	19-FEB-2009 03:17	841616	224375		2.0 004MSD	Pass	
+	+	+	+	+	+	+	+	+	+
ex3b1829.d	224375005	CwW	19-FEB-2009 03:54	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1830.d	224375009	CwW	19-FEB-2009 04:32	841616	224375		2.0 SSFL		
+	+	+	+	+	+	+	+	+	+
ex3b1831.d	WXP090218-01	CwW	19-FEB-2009 05:09	ACCUSTD	x021809		1.0 CCV	Pass, 257935 @ 16.105	
+	+	+	+	+	+	+	+	+	+
ex3b1832.d	INST BLANK	CwW	19-FEB-2009 05:47	-----	x021809		1.0 INST BLK		
+	+	+	+	+	+	+	+	+	+

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC C

DATE: 03/23/09 METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *[Signature]*
DATE: *[Signature]*

HARDWARE CONFIGURATION & METHOD SUMMARY: No. 14 on pg. 14 REF MAT#: 1092372, 1090393

Extr. Injection Volume: 100 ul

Sequence Number: X032309 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090323-01

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
lex3c2301.d	INST BLANK	CWW	123-MAR-2009 10:03	1-00000	x032309	1.0	INST BLK	
lex3c2302.d	INST BLANK	CWW	123-MAR-2009 10:40	1-00000	x032309	1.0	INST BLK	
lex3c2303.d	WXP090323-01	CWW	123-MAR-2009 11:18	ACCUSTD	x032309	1.0	CCV	Pass, 258785 @ 16.174
lex3c2304.d	INST BLANK	CWW	123-MAR-2009 11:55	1-00000	x032309	1.0	INST BLK	
lex3c2305.d	1201800791	CWW	123-MAR-2009 12:32	851503	226257-1	2.0	MB	xc4c2506
lex3c2306.d	1201800792	CWW	123-MAR-2009 13:10	851503	226257-1	2.0	LCS	Pass
lex3c2307.d	1201800793	CWW	123-MAR-2009 13:47	851503	226257-1	2.0	LCSD	Pass
lex3c2308.d	1226257002	CWW	123-MAR-2009 14:25	851503	226257-1	2.0	SNLS	xc4c2507
lex3c2309.d	WXP090323-01	CWW	123-MAR-2009 15:02	ACCUSTD	x032309	1.0	CCV	Pass, 261415 @ 16.203
lex3c2310.d	INST BLANK	CWW	123-MAR-2009 15:39	1-00000	x032309	1.0	INST BLK	
lex3c2311.d	1201800732	CWW	123-MAR-2009 16:17	851476	226257	2.0	MB	xc4c2509
lex3c2312.d	1201800733	CWW	123-MAR-2009 16:54	851476	226257	2.0	LCS	Pass
lex3c2313.d	1226257002	CWW	123-MAR-2009 17:32	851476	226257	2.0	SNLS	
lex3c2314.d	1201800734	CWW	123-MAR-2009 18:09	851476	226257	2.0	002MS	Pass
lex3c2315.d	1201800735	CWW	123-MAR-2009 18:47	851476	226257	2.0	002MSD	Pass
lex3c2316.d	1226257004	CWW	123-MAR-2009 19:24	851476	226257	2.0	SNLS	
lex3c2317.d	1226257006	CWW	123-MAR-2009 20:01	851476	226257	2.0	SNLS	xc4c2510

Instrument Batch: /chem/hplcc.i/x032309.b

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Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
lex3c2318.d	1226257008	CWW	123-MAR-2009 20:39	851476	226257	2.0	SNLS	

ex3c2319.d	226257010	CwW	23-MAR-2009 21:16	851476	226257		2.0 SNLS		+
ex3c2320.d	WXP090323-01	CwW	23-MAR-2009 21:54	ACCUSTD	x032309		1.0 CCV	Pass, 261699 @ 16.250	
ex3c2321.d	INST BLANK	CwW	23-MAR-2009 22:31	-----	x032309		1.0 INST BLK		+

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC D

DATE: 03/05/09 METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *Andy*DATE: *03/12/09*

HARDWARE CONFIGURATION & METHOD SUMMARY: No.14 on pg.14

REF MAT#: 1075665,1054169

Extr. Injection Volume: 100 ul

Sequence Number: XC030509 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090306-02, -03, -04

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c0501.d	INST BLANK	CWW	05-MAR-2009 14:37	-----	xc030509		1.0 INST BLANK	
xc4c0502.d	WXP090305-32	CWW	05-MAR-2009 15:25	ACCUSTD	xc030509		1.0 MIX A LVL7 ACCUSTD	
xc4c0503.d	WXP090305-34	CWW	05-MAR-2009 16:14	ACCUSTD	xc030509		1.0 MIX A LVL5 ACCUSTD	
xc4c0504.d	WXP090305-36	CWW	05-MAR-2009 17:03	ACCUSTD	xc030509		1.0 MIX A LVL3 ACCUSTD	
xc4c0505.d	WXP090305-50	CWW	05-MAR-2009 17:51	ACCUSTD	xc030509		1.0 MIX A LVL1 ACCUSTD	
xc4c0506.d	WXP090305-33	CWW	05-MAR-2009 18:40	ACCUSTD	xc030509		1.0 MIX A LVL6 ACCUSTD	
xc4c0507.d	WXP090305-35	CWW	05-MAR-2009 19:29	ACCUSTD	xc030509		1.0 MIX A LVL4 ACCUSTD	
xc4c0507RT.d	WXP090305-35	CWW	05-MAR-2009 19:29	ACCUSTD	xc030509		1.0 MIX A LVL4 Duse, for RT purpose only	
xc4c0508.d	WXP090305-37	CWW	05-MAR-2009 20:17	ACCUSTD	xc030509		1.0 MIX A LVL2 ACCUSTD	
xc4c0509.d	INST BLANK	CWW	05-MAR-2009 21:06	-----	xc030509		1.0 INST BLANK	
xc4c0510.d	WXP090305-38	CWW	05-MAR-2009 21:55	ACCUSTD	xc030509		1.0 MIX B LVL7 ACCUSTD	
xc4c0511.d	WXP090305-40	CWW	05-MAR-2009 22:43	ACCUSTD	xc030509		1.0 MIX B LVL5 ACCUSTD	
xc4c0512.d	WXP090305-42	CWW	05-MAR-2009 23:32	ACCUSTD	xc030509		1.0 MIX B LVL3 ACCUSTD	
xc4c0513.d	WXP090305-51	CWW	06-MAR-2009 00:20	ACCUSTD	xc030509		1.0 MIX B LVL1 ACCUSTD	
xc4c0514.d	WXP090305-39	CWW	06-MAR-2009 01:09	ACCUSTD	xc030509		1.0 MIX B LVL6 ACCUSTD	
xc4c0515.d	WXP090305-41	CWW	06-MAR-2009 01:58	ACCUSTD	xc030509		1.0 MIX B LVL4 ACCUSTD	
xc4c0515RT.d	WXP090305-41	CWW	06-MAR-2009 01:58	ACCUSTD	xc030509		1.0 MIX B LVL4 Duse, for RT purpose only	

Instrument Batch: /chem/hplcd.i/xc030509.b

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Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c0516.d	WXP090305-43	CWW	06-MAR-2009 02:46	ACCUSTD	xc030509		1.0 MIX B LVL2 ACCUSTD	

xc4c0517.d	INST BLANK	CWw	06-MAR-2009 03:35	-----	xc030509	1.0 INST BLANK	
+							+
xc4c0518.d	wXP090305-44	CWw	06-MAR-2009 04:24	ACCUSTD	xc030509	1.0 MIX C LVL7 ACCUSTD	
+							+
xc4c0519.d	wXP090305-46	CWw	06-MAR-2009 05:13	ACCUSTD	xc030509	1.0 MIX C LVL5 ACCUSTD	
+							+
xc4c0520.d	wXP090305-48	CWw	06-MAR-2009 06:01	ACCUSTD	xc030509	1.0 MIX C LVL3 ACCUSTD	
+							+
xc4c0521.d	wXP090305-52	CWw	06-MAR-2009 06:50	ACCUSTD	xc030509	1.0 MIX C LVL1 ACCUSTD	
+							+
xc4c0522.d	wXP090305-45	CWw	06-MAR-2009 07:39	ACCUSTD	xc030509	1.0 MIX C LVL6 ACCUSTD	
+							+
xc4c0523.d	wXP090305-47	CWw	06-MAR-2009 08:27	ACCUSTD	xc030509	1.0 MIX C LVL4 ACCUSTD	
+							+
xc4c0523RT.d	wXP090305-47	CWw	06-MAR-2009 08:27	ACCUSTD	xc030509	1.0 MIX C LVL4 Duse, for RT purpose only	
+							+
xc4c0524.d	wXP090305-49	CWw	06-MAR-2009 09:16	ACCUSTD	xc030509	1.0 MIX C LVL2 ACCUSTD	
+							+
xc4c0525.d	INST BLANK	CWw	06-MAR-2009 10:05	-----	xc030509	1.0 INST BLANK	
+							+
xc4c0526.d	wXP090306-02	CWw	06-MAR-2009 10:53	RESTEK	xc030509	1.0 MIX A ICV RESTEK	
+							+
xc4c0526A.d	wXP090306-02	CWw	06-MAR-2009 10:53	RESTEK	xc030509	1.0 MIX A CCV Pass	
+							+
xc4c0527.d	wXP090306-03	CWw	06-MAR-2009 11:42	RESTEK	xc030509	1.0 MIX B ICV RESTEK	
+							+
xc4c0527A.d	wXP090306-03	CWw	06-MAR-2009 11:42	RESTEK	xc030509	1.0 MIX B CCV Pass	
+							+
xc4c0528.d	wXP090306-04	CWw	06-MAR-2009 12:31	RESTEK	xc030509	1.0 MIX C ICV RESTEK	
+							+
xc4c0528A.d	wXP090306-04	CWw	06-MAR-2009 12:31	RESTEK	xc030509	1.0 MIX C CCV Pass, 87160 @ 27.540	
+							+
xc4c0529.d	INST BLANK	CWw	06-MAR-2009 13:19	-----	xc030509	1.0 INST BLANK	
+							+
xc4c0530.d	1201787998	CWw	06-MAR-2009 14:08	846144	225266	2.0 MB ex3c0305 & ex3c0513	
+							+
xc4c0531.d	225266007	CWw	06-MAR-2009 14:57	846144	225266	2.0 SSFL ex3c0308 & ex3c0516	
+							+

Instrument Batch: /chem/hplcd.i/xc030509.b

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c0532.d	INST BLANK	CWw	06-MAR-2009 15:45	-----	xc030509	1.0 INST BLANK		
xc4c0533.d	1201787972	CWw	06-MAR-2009 16:34	846135	225266	2.0 MB	ex3c0311	
xc4c0534.d	225266003	CWw	06-MAR-2009 17:23	846135	225266	2.0 SSFL	ex3c0314	
xc4c0535.d	225266004	CWw	06-MAR-2009 18:12	846135	225266	2.0 SSFL	ex3c0317	
xc4c0536.d	225266005	CWw	06-MAR-2009 19:00	846135	225266	2.0 SSFL	ex3c0318	
xc4c0537.d	INST BLANK	CWw	06-MAR-2009 19:49	-----	xc030509	1.0 INST BLANK		

xc4c0538.d	WXP090306-02	CWW	06-MAR-2009 20:37	RESTEK	xc030509		1.0 MIX A CCV	Pass	
xc4c0539.d	WXP090306-03	CWW	06-MAR-2009 21:26	RESTEK	xc030509		1.0 MIX B CCV	Pass	
xc4c0540.d	WXP090306-04	CWW	06-MAR-2009 22:15	RESTEK	xc030509		1.0 MIX C CCV	Pass, 86807 @ 27.554	
xc4c0541.d	INST BLANK	CWW	06-MAR-2009 23:03	-----	xc030509		1.0 INST BLANK		

GEL ORGANIC RUN LOG

INSTRUMENT ID: HPLC D

DATE: 03/25/09 METHOD: 8330

OPERATOR: CWW

REVIEWED BY: *[Signature]*
DATE: *[Signature]*

HARDWARE CONFIGURATION & METHOD SUMMARY: No.14 on pg.14

REF MAT#: 1075665, 1054169

Extr. Injection Volume: 100 ul

Sequence Number: XC032509 Initial Calibration Date(s): See Calibration History SOP: GL-OA-E-033 Rev. 16
Alt. Check Std. ID: WXP090325-02 & -03

Data File	GEL Lab Sample ID	Analyst	Injection Date/Time	Batch	SDG	Dilution	Client	Comments
xc4c2501.d	INST BLANK	CWW	25-MAR-2009 09:09	-----	xc032509		1.0 INST BLANK	
xc4c2502.d	INST BLANK	CWW	25-MAR-2009 09:58	-----	xc032509		1.0 INST BLANK	
xc4c2503.d	WXP090325-02	CWW	25-MAR-2009 10:46	RESTEK	xc032509		1.0 MIX A CCV Pass	
xc4c2504.d	WXP090325-03	CWW	25-MAR-2009 11:35	RESTEK	xc032509		1.0 MIX B CCV Pass, 91845 @ 27.526	
xc4c2505.d	INST BLANK	CWW	25-MAR-2009 12:24	-----	xc032509		1.0 INST BLANK	
xc4c2506.d	1201800791	CWW	25-MAR-2009 13:13	851503	226257-1		2.0 MB ex3c2305	
xc4c2507.d	226265002	CWW	25-MAR-2009 14:01	851503	226257-1		2.0 SNLS ex3c2308	
xc4c2508.d	INST BLANK	CWW	25-MAR-2009 14:50	-----	xc032509		1.0 INST BLANK	
xc4c2509.d	1201800732	CWW	25-MAR-2009 15:39	851476	226257		2.0 MB ex3c2311	
xc4c2510.d	226257006	CWW	25-MAR-2009 16:27	851476	226257		2.0 SNLS ex3c2317	
xc4c2511.d	WXP090325-02	CWW	25-MAR-2009 17:16	RESTEK	xc032509		1.0 MIX A CCV Pass	
xc4c2512.d	WXP090325-03	CWW	25-MAR-2009 18:05	RESTEK	xc032509		1.0 MIX B CCV Pass, 90892 @ 27.467	
xc4c2513.d	INST BLANK	CWW	25-MAR-2009 18:53	-----	xc032509		1.0 INST BLANK	

Instrument Batch: /chem/hplcd.i/xc032509.b

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Metals Analysis

Case Narrative

**Metals Fractional Narrative
Sandia National Labs (SNLS)
SDG 226257**

Sample Analysis

Sample ID	Client ID
226257001	087114-001
226257003	087115-001
226257005	087116-001
226257007	087117-001
226257009	087118-001
1201801015	Method Blank (MB) ICP
1201801016	Laboratory Control Sample (LCS)
1201801020	226257001(087114-001L) Serial Dilution (SD)
1201801017	226257001(087114-001D) Sample Duplicate (DUP)
1201801018	226257001(087114-001S) Matrix Spike (MS)
1201801023	226257001(087114-001SD) Matrix Spike Duplicate (MSD)
1201801019	226257001(087114-001PS) Post Spike (PS)

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

Method/Analysis Information

Analytical Batch: 851615
Prep Batch : 851609
Standard Operating Procedures: GL-MA-E-013 REV# 19 and GL-MA-E-009 REV# 18
Analytical Method: SW846 3050B/6010B
Prep Method : SW846 3050B

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 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.

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. PQL02 is not applicable to the required method(s) required for this SDG and does not affect the data reported.

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 MB 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: 226257001 (087114-001).

Matrix Spike (MS) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes, with the exception of silver, as indicated by the “*” qualifier.

Matrix Spike Duplicate (MSD) Recovery Statement

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

MS/MSD Relative Percent Difference (RPD) Statement

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

Duplicate Relative Percent Difference (RPD) Statement

The relative percent difference (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 contract required detection limit (RL), a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements, with the exception of silver, as indicated by the “*” qualifier.

Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the PS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The PS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the absence of matrix interferences.

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL for CVAA, 50X the IDL for ICP, and 100X the IDL 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.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Sample 226257009 was diluted 5x for silver in order to bring over range concentrations within the linear calibration range of the instrument.

Preparation Information

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

Miscellaneous Information

Nonconformance Documentation

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: 675963. A copy is included in the Miscellaneous Data section of this package.

Additional Comments

Additional comments were not required for this SDG.

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: B. Davis Date: 4-14-09

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 226257

Contract: SNLS00207

Lab Code: GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Acceptance Window (%R)</u>	<u>M</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
ICV01	Silver	251	ug/L	250	ug/L	100.4	90.0 – 110.0	P	27-MAR-09 08:37	032709-1
	Silver	255	ug/L	250	ug/L	102	90.0 – 110.0	P	30-MAR-09 09:13	033009-2
CCV01	Silver	510	ug/L	500	ug/L	102.1	90.0 – 110.0	P	27-MAR-09 09:22	032709-1
	Silver	516	ug/L	500	ug/L	103.1	90.0 – 110.0	P	30-MAR-09 09:58	033009-2
CCV02	Silver	507	ug/L	500	ug/L	101.5	90.0 – 110.0	P	27-MAR-09 09:52	032709-1
	Silver	512	ug/L	500	ug/L	102.5	90.0 – 110.0	P	30-MAR-09 10:27	033009-2
CCV03	Silver	507	ug/L	500	ug/L	101.5	90.0 – 110.0	P	27-MAR-09 10:55	032709-1
	Silver	508	ug/L	500	ug/L	101.7	90.0 – 110.0	P	30-MAR-09 11:15	033009-2
CCV04	Silver	508	ug/L	500	ug/L	101.5	90.0 – 110.0	P	27-MAR-09 11:53	032709-1
	Silver	515	ug/L	500	ug/L	102.9	90.0 – 110.0	P	30-MAR-09 12:19	033009-2
CCV05	Silver	509	ug/L	500	ug/L	101.8	90.0 – 110.0	P	27-MAR-09 12:53	032709-1
	Silver	510	ug/L	500	ug/L	102	90.0 – 110.0	P	30-MAR-09 13:20	033009-2
CCV06	Silver	510	ug/L	500	ug/L	102	90.0 – 110.0	P	27-MAR-09 13:42	032709-1
	Silver	507	ug/L	500	ug/L	101.5	90.0 – 110.0	P	30-MAR-09 13:47	033009-2
CCV07	Silver	503	ug/L	500	ug/L	100.5	90.0 – 110.0	P	27-MAR-09 14:08	032709-1
CCV08	Silver	504	ug/L	500	ug/L	100.9	90.0 – 110.0	P	27-MAR-09 15:12	032709-1
CCV09	Silver	504	ug/L	500	ug/L	100.7	90.0 – 110.0	P	27-MAR-09 16:02	032709-1
CCV10	Silver	501	ug/L	500	ug/L	100.3	90.0 – 110.0	P	27-MAR-09 16:44	032709-1

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 226257

Contract: SNLS00207

Lab Code: GEL

Initial Calibration Source:

Continuing Calibration Source:

Instrument ID: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Acceptance Window (%R)</u>	<u>M</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
CCV11	Silver	502	ug/L	500	ug/L	100.5	90.0 – 110.0	P	27-MAR-09 18:03	032709-1
CCV12	Silver	508	ug/L	500	ug/L	101.6	90.0 – 110.0	P	27-MAR-09 19:21	032709-1
CCV13	Silver	507	ug/L	500	ug/L	101.4	90.0 – 110.0	P	27-MAR-09 20:26	032709-1
CCV14	Silver	506	ug/L	500	ug/L	101.2	90.0 – 110.0	P	27-MAR-09 21:23	032709-1
CCV15	Silver	506	ug/L	500	ug/L	101.3	90.0 – 110.0	P	27-MAR-09 22:12	032709-1
CCV16	Silver	500	ug/L	500	ug/L	100.1	90.0 – 110.0	P	27-MAR-09 23:16	032709-1
CCV17	Silver	499	ug/L	500	ug/L	99.7	90.0 – 110.0	P	28-MAR-09 00:14	032709-1
CCV18	Silver	497	ug/L	500	ug/L	99.3	90.0 – 110.0	P	28-MAR-09 01:09	032709-1
CCV19	Silver	492	ug/L	500	ug/L	98.4	90.0 – 110.0	P	28-MAR-09 01:58	032709-1
CCV20	Silver	488	ug/L	500	ug/L	97.5	90.0 – 110.0	P	28-MAR-09 02:55	032709-1
CCV21	Silver	484	ug/L	500	ug/L	96.8	90.0 – 110.0	P	28-MAR-09 03:51	032709-1
CCV22	Silver	486	ug/L	500	ug/L	97.2	90.0 – 110.0	P	28-MAR-09 04:46	032709-1
CCV23	Silver	485	ug/L	500	ug/L	96.9	90.0 – 110.0	P	28-MAR-09 05:41	032709-1

METALS
-2b-
CRDL Standard for AA & ICP

SDG No: 226257

Contract: SNLS00207

Lab Code: GEL

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source Solutions Plus

Instrument ID: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Advisory Limits (%R)</u>	<u>M</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
PQL01										
	Silver	5.2	ug/L	5	ug/L	103.95	70.0 – 130.0	P	27-MAR-09 08:51	032709-1
	Silver	5.43	ug/L	5	ug/L	108.66	70.0 – 130.0	P	30-MAR-09 09:27	033009-2
PQL02										
	Silver	5.4	ug/L	5	ug/L	108.04	70.0 – 130.0	P	30-MAR-09 13:27	033009-2

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 226257

Contract: SNLS00207

Lab Code: GEL

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u> <u>ug/L</u>	<u>Acceptance</u>	<u>Conc</u> <u>Qual</u>	<u>MDL</u>	<u>RDL</u>	<u>Matrix</u>	<u>M</u>	<u>Analysis</u> <u>Date/Time</u>	<u>Run</u>
ICB01	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 08:44	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 09:20	033009-2
CCB01	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 09:29	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 10:05	033009-2
CCB02	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 10:00	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 10:33	033009-2
CCB03	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 11:02	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 11:22	033009-2
CCB04	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 12:00	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 12:26	033009-2
CCB05	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 13:00	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 13:33	033009-2
CCB06	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 13:48	032709-1
	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	30-MAR-09 13:54	033009-2
CCB07	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 14:15	032709-1
CCB08	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 15:19	032709-1
CCB09	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 16:10	032709-1
CCB10	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 16:51	032709-1
CCB11	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 18:10	032709-1
CCB12	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 19:28	032709-1

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 226257

Contract: SNLS00207

Lab Code: GEL

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u> <u>ug/L</u>	<u>Acceptance</u>	<u>Conc</u> <u>Qual</u>	<u>MDL</u>	<u>RDL</u>	<u>Matrix</u>	<u>M</u>	<u>Analysis</u> <u>Date/Time</u>	<u>Run</u>
CCB13	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 20:33	032709-1
CCB14	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 21:30	032709-1
CCB15	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 22:20	032709-1
CCB16	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	27-MAR-09 23:23	032709-1
CCB17	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 00:21	032709-1
CCB18	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 01:16	032709-1
CCB19	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 02:05	032709-1
CCB20	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 03:02	032709-1
CCB21	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 03:59	032709-1
CCB22	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 04:53	032709-1
CCB23	Silver	1.0	+/-5	U	1.0	5.0	SOL	P	28-MAR-09 05:48	032709-1

METALS
-4-
Interference Check Sample

SDG No: 226257

Contract: SNLS00207

Lab Code: GEL

ICS: O2Si

Instrument: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Acceptance Window (%R)</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
ICSA01	Silver	1.48	ug/L					27-MAR-09 08:58	032709-1
ICSAB01	Silver	283	ug/L	250	ug/L	113	80.0 - 120.0	27-MAR-09 09:04	032709-1

METALS
-4-
Interference Check Sample

SDG No: 226257

Contract: SNLS00207

Lab Code: GEL

ICS: O2Si

Instrument: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Acceptance Window (%R)</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
ICSA01	Silver	-0.091	ug/L					30-MAR-09 09:34	033009-2
ICSAB01	Silver	284	ug/L	250	ug/L	114	80.0 - 120.0	30-MAR-09 09:40	033009-2

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 226257

Method Type: P

Contract: SNLS00207

Lab Code: GEL

<u>Sample ID</u>	<u>Client ID</u>	<u>Sample Type</u>	<u>Matrix</u>	<u>Prep Date</u>	<u>Initial Sample Size</u>	<u>Final Sample Volume</u>	<u>Percent Solids</u>
Batch Number	851609						
1201801015	MB for batch 851609	MB	SOIL	26-MAR-09	.522g	50mL	
1201801016	LCS for batch 851609	LCS	SOIL	26-MAR-09	.508g	50mL	
1201801018	087114-001S	MS	SOIL	26-MAR-09	.506g	50mL	
1201801023	087114-001SD	MSD	SOIL	26-MAR-09	.5g	50mL	
1201801017	087114-001D	DUP	SOIL	26-MAR-09	.515g	50mL	
226257001	087114-001	SAMPLE	SOIL	26-MAR-09	.522g	50mL	
226257003	087115-001	SAMPLE	SOIL	26-MAR-09	.516g	50mL	
226257005	087116-001	SAMPLE	SOIL	26-MAR-09	.501g	50mL	
226257007	087117-001	SAMPLE	SOIL	26-MAR-09	.516g	50mL	
226257009	087118-001	SAMPLE	SOIL	26-MAR-09	.509g	50mL	

Metals
-14-
Analysis Run Log

Contract: SNLS00207**Lab Code:** GEL**Inst Name:** OPTIMA3**Start Date:** 27-MAR-09**End Date:** 28-MAR-09**Client Sdg:** 226257**Method** P**Data File:** 032709-1

Samp No.	D/F	Run Time	Ag
S0.0	1	08:05	X
S0.1	1	08:12	X
S0.5	1	08:18	X
SCAL	1	08:25	X
S10	1	08:32	
ICV01	1	08:37	X
ICB01	1	08:44	X
PQL01	1	08:51	X
ICSA01	1	08:58	X
ICSAB01	1	09:04	X
LR01	1	09:09	X
LR02	1	09:15	X
CCV01	1	09:22	X
CCB01	1	09:29	X
LR03	1	09:38	X
LR04	1	09:45	X
CCV02	1	09:52	X
CCB02	1	10:00	X
ZZZZZZ	1	10:07	
ZZZZZZ	1	10:13	
ZZZZZZ	1	10:20	
ZZZZZZ	1	10:27	
ZZZZZZ	1	10:34	
ZZZZZZ	1	10:41	
ZZZZZZ	1	10:48	
CCV03	1	10:55	X
CCB03	1	11:02	X
ZZZZZZ	1	11:12	
ZZZZZZ	1	11:18	
ZZZZZZ	1	11:25	
ZZZZZZ	1	11:32	
ZZZZZZ	1	11:39	
ZZZZZZ	1	11:46	
CCV04	1	11:53	X
CCB04	1	12:00	X
ZZZZZZ	1	12:07	
ZZZZZZ	1	12:14	
ZZZZZZ	1	12:21	
ZZZZZZ	1	12:28	
ZZZZZZ	1	12:35	

Metals
-14-
Analysis Run Log

Samp No.	D/F	Run Time	Ag
ZZZZZZ	1	12:42	
ZZZZZZ	1	12:48	
CCV05	1	12:53	X
CCB05	1	13:00	X
ZZZZZZ	1	13:07	
ZZZZZZ	1	13:14	
ZZZZZZ	1	13:21	
ZZZZZZ	1	13:28	
ZZZZZZ	1	13:35	
CCV06	1	13:42	X
CCB06	1	13:48	X
CCV07	1	14:08	X
CCB07	1	14:15	X
ZZZZZZ	1	14:22	
ZZZZZZ	1	14:29	
ZZZZZZ	1	14:36	
ZZZZZZ	1	14:43	
ZZZZZZ	1	14:50	
ZZZZZZ	1	14:57	
ZZZZZZ	5	15:05	
CCV08	1	15:12	X
CCB08	1	15:19	X
ZZZZZZ	10	15:26	
ZZZZZZ	10	15:33	
ZZZZZZ	10	15:41	
ZZZZZZ	10	15:48	
ZZZZZZ	50	15:55	
CCV09	1	16:02	X
CCB09	1	16:10	X
ZZZZZZ	10	16:17	
ZZZZZZ	20	16:23	
ZZZZZZ	5	16:30	
ZZZZZZ	5	16:37	
CCV10	1	16:44	X
CCB10	1	16:51	X
ZZZZZZ	1	16:58	
ZZZZZZ	1	17:06	
ZZZZZZ	1	17:13	
ZZZZZZ	1	17:20	
ZZZZZZ	1	17:27	

Metals
-14-
Analysis Run Log

Samp No.	D/F	Run Time	Ag
ZZZZZZ	1	17:34	
ZZZZZZ	1	17:41	
ZZZZZZ	1	17:48	
ZZZZZZ	1	17:56	
CCV11	1	18:03	X
CCB11	1	18:10	X
ZZZZZZ	1	18:17	
ZZZZZZ	1	18:24	
ZZZZZZ	1	18:31	
ZZZZZZ	1	18:38	
ZZZZZZ	1	18:45	
ZZZZZZ	1	18:53	
ZZZZZZ	1	19:00	
ZZZZZZ	1	19:07	
ZZZZZZ	5	19:14	
CCV12	1	19:21	X
CCB12	1	19:28	X
ZZZZZZ	1	19:35	
ZZZZZZ	1	19:42	
ZZZZZZ	1	19:50	
ZZZZZZ	1	19:57	
ZZZZZZ	1	20:04	
ZZZZZZ	5	20:12	
ZZZZZZ	1	20:19	
CCV13	1	20:26	X
CCB13	1	20:33	X
ZZZZZZ	1	20:40	
ZZZZZZ	1	20:47	
ZZZZZZ	1	20:54	
ZZZZZZ	1	21:01	
ZZZZZZ	1	21:08	
ZZZZZZ	1	21:16	
CCV14	1	21:23	X
CCB14	1	21:30	X
ZZZZZZ	5	21:37	
ZZZZZZ	1	21:44	
ZZZZZZ	1	21:51	
ZZZZZZ	1	21:58	
ZZZZZZ	1	22:05	
CCV15	1	22:12	X

Metals
-14-
Analysis Run Log

Samp No.	D/F	Run Time	Ag
CCB15	1	22:20	X
ZZZZZZ	1	22:26	
ZZZZZZ	1	22:34	
ZZZZZZ	1	22:41	
ZZZZZZ	1	22:48	
ZZZZZZ	1	22:55	
ZZZZZZ	1	23:02	
ZZZZZZ	5	23:09	
CCV16	1	23:16	X
CCB16	1	23:23	X
ZZZZZZ	1	23:30	
ZZZZZZ	1	23:38	
ZZZZZZ	1	23:45	
ZZZZZZ	1	23:52	
ZZZZZZ	1	23:59	
ZZZZZZ	1	00:06	
CCV17	1	00:14	X
CCB17	1	00:21	X
ZZZZZZ	1	00:28	
ZZZZZZ	2	00:35	
ZZZZZZ	1	00:42	
ZZZZZZ	1	00:49	
ZZZZZZ	1	00:55	
ZZZZZZ	1	01:02	
CCV18	1	01:09	X
CCB18	1	01:16	X
ZZZZZZ	5	01:23	
ZZZZZZ	1	01:30	
ZZZZZZ	1	01:37	
ZZZZZZ	1	01:44	
ZZZZZZ	1	01:51	
CCV19	1	01:58	X
CCB19	1	02:05	X
ZZZZZZ	1	02:12	
ZZZZZZ	2	02:19	
ZZZZZZ	1	02:26	
ZZZZZZ	1	02:33	
ZZZZZZ	1	02:41	
ZZZZZZ	1	02:48	
CCV20	1	02:55	X

Metals
-14-
Analysis Run Log

Samp No.	D/F	Run Time	Ag
CCB20	1	03:02	X
ZZZZZZ	5	03:09	
ZZZZZZ	1	03:16	
ZZZZZZ	1	03:23	
ZZZZZZ	1	03:30	
ZZZZZZ	1	03:37	
ZZZZZZ	1	03:44	
CCV21	1	03:51	X
CCB21	1	03:59	X
1201801015	1	04:06	X
1201801016	2	04:13	X
226257001	1	04:20	X
1201801017	1	04:27	X
1201801018	1	04:34	X
1201801023	1	04:40	X
CCV22	1	04:46	X
CCB22	1	04:53	X
1201801019	1	05:00	X
1201801020	5	05:06	X
226257003	1	05:13	X
226257005	1	05:20	X
226257007	1	05:27	X
ZZZZZZ	1	05:34	
CCV23	1	05:41	X
CCB23	1	05:48	X

Metals
-14-
Analysis Run Log

Contract: SNLS00207**Lab Code:** GEL**Inst Name:** OPTIMA3**Start Date:** 30-MAR-09**End Date:** 30-MAR-09**Client Sdg:** 226257**Method** P**Data File:** 033009-2

Samp No.	D/F	Run Time	Ag
S0.0	1	08:42	X
S0.1	1	08:48	X
S0.5	1	08:54	X
SCAL	1	09:01	X
S10	1	09:08	
ICV01	1	09:13	X
ICB01	1	09:20	X
PQL01	1	09:27	X
ICSA01	1	09:34	X
ICSAB01	1	09:40	X
LR01	1	09:45	X
LR02	1	09:51	X
CCV01	1	09:58	X
CCB01	1	10:05	X
ZZZZZZ	1	10:14	
LR03	1	10:19	X
CCV02	1	10:27	X
CCB02	1	10:33	X
ZZZZZZ	1	10:41	
ZZZZZZ	1	10:48	
ZZZZZZ	1	10:55	
ZZZZZZ	1	11:02	
ZZZZZZ	1	11:09	
CCV03	1	11:15	X
CCB03	1	11:22	X
ZZZZZZ	1	11:29	
ZZZZZZ	1	11:36	
ZZZZZZ	50	11:43	
ZZZZZZ	50	11:50	
ZZZZZZ	50	11:57	
ZZZZZZ	50	12:05	
ZZZZZZ	250	12:12	
CCV04	1	12:19	X
CCB04	1	12:26	X
ZZZZZZ	1	12:32	
ZZZZZZ	1	12:39	
ZZZZZZ	1	12:46	
ZZZZZZ	1	12:53	
ZZZZZZ	1	13:00	
ZZZZZZ	1	13:07	

Metals
-14-
Analysis Run Log

Samp No.	D/F	Run Time	Ag
ZZZZZZ	5	13:13	
CCV05	1	13:20	X
PQL02	1	13:27	X
CCB05	1	13:33	X
226257009	5	13:40	X
CCV06	1	13:47	X
CCB06	1	13:54	X

Standards

METALS
-10-
Instrument Detection Limits

SDG NO. 226257

Contract: SNLS00207

Lab Code: GEL

MDL Effective Date: 23-JUL-07

	<u>Analyte</u>	<u>Wavelength</u> <u>(nm)</u>	<u>MDL</u> <u>ug/L</u>	<u>RDL</u> <u>ug/L</u>
ICP				
SOLID	Silver	328.068	1.0	5

METALS
-11-
Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Aluminum	Antimony	Arsenic	Barium	Beryllium
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.02397	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	-0.44940	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	-0.18516	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	-0.33886	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.12355	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	-0.00719	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.19671	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	-0.02065	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
-11-
Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Boron	Cadmium	Chromium	Cobalt	Copper
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	24.6001	0.00000	0.00000
Arsenic	188.979	0.52529	0.00000	-0.98646	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	5.12071	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.38952	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	-31.5465	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.45500
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.63859	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	199.36
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	5.22870	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.35099	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	1.93161	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.39273	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	1.33459

METALS
-11-
Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Iron	Lead	Magnesium	Manganese	Molybdenum
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	27.7411
Antimony	206.836	-0.01812	0.00000	0.00000	0.00000	19.4646
Arsenic	188.979	-0.21752	0.00000	0.00000	0.00000	1.34645
Barium	233.527	0.01130	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.15442	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.10069	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	-0.01223	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.01425	0.00000	0.00000	0.00000	-2.29442
Copper	324.752	-0.02702	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.08168	0.00000	0.00000	0.00000	-2.44485
Magnesium	279.077	0.57441	0.00000	0.00000	0.00000	-20.2401
Manganese	257.61	-0.10548	0.00000	0.01930	0.00000	0.00000
Molybdenum	202.031	-0.06417	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.75191	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	-0.21880	0.00000	0.00228	12.4291	11.5866
Selenium	196.026	-2.83667	0.00000	0.00000	0.00000	-1.55242
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	17.4444
Silver	328.068	-0.31996	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	-4.64362	0.00000
Tin	189.927	-0.01397	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.12289	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.14647	0.00000	-0.01660	0.00000	-14.5869
Zinc	213.857	0.09734	0.00000	0.03466	0.00000	0.00000

METALS
-11-
Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Nickel	Phosphorous	Potassium	Selenium	Silicon
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	-0.64279	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.33191	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	6.38465	0.00000	0.00000	0.00000	0.00000

METALS
-11-
Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Silver	Strontium	Sulfur	Thallium	Tin
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	-16.3819
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	-13.8713
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	13.4210
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
-11-
Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Titanium	Uranium	Vanadium	Zinc
Parmname	Wavelength				
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	2.83685	0.00000	-2.97302	0.00000
Arsenic	188.979	-4.61098	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	-2.24883	0.00000
Beryllium	313.107	-2.32423	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.32181	-1.53369	0.00000
Cobalt	228.616	2.12623	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.85359	-3.97628	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	-8.67156	0.00000	2.18873	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.44145	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	1.10141	-1.94183	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000

METALS
-12-
Linear Ranges

SDG NO. 226257

Contract: SNLS00207

Lab Code: GEL

Instrument ID OPTIMA3

<u>Analyte</u>	<u>Integration Time</u>	<u>LDR</u>	<u>Units</u>	<u>Effective Date</u>
Silver		1000	ug/L	01-FEB-09

Miscellaneous

Prep LogBook

Analyst: CXS3 Verified by: _____

Batch: 851609

Lab SOP: GL-MA-E-009 REV# 18

Type	Sample Id	Lot. Id	Spike Amount	Spike Units
LCS	1201801016	UI652380	.508	g
MS	1201801018	UI1096754-01	.25	mL
MS	1201801018	UI1096758-06	.25	mL
MSD	1201801023	UI1096754-01	.25	mL
MSD	1201801023	UI1096758-06	.25	mL

Sample Type	Sample ID	Parent Sample ID	Method	Prep Date	Initial Wt.	Final Volume	Prep Factor	Matrix
MB	1201801015		SW846 3050B	26-MAR-2009 08:02	0.522 g	50 mL	95.78544	SOIL
LCS	1201801016		SW846 3050B	26-MAR-2009 08:02	0.508 g	50 mL	98.4252	SOIL
SAMPLE	226257001		SW846 3050B	26-MAR-2009 08:02	0.522 g	50 mL	95.78544	SOIL
DUP	1201801017	226257001	SW846 3050B	26-MAR-2009 08:02	0.515 g	50 mL	97.08738	SOIL
MS	1201801018	226257001	SW846 3050B	26-MAR-2009 08:02	0.506 g	50 mL	98.81423	SOIL
MSD	1201801023	226257001	SW846 3050B	26-MAR-2009 08:02	0.5 g	50 mL	100	SOIL
SDILT	1201801020	226257001	SW846 3050B	26-MAR-2009 08:02	0.522 g	50 mL	95.78544	SOIL
SAMPLE	226257003		SW846 3050B	26-MAR-2009 08:02	0.516 g	50 mL	96.89922	SOIL
SAMPLE	226257005		SW846 3050B	26-MAR-2009 08:02	0.501 g	50 mL	99.8004	SOIL
SAMPLE	226257007		SW846 3050B	26-MAR-2009 08:02	0.516 g	50 mL	96.89922	SOIL
SAMPLE	226257009		SW846 3050B	26-MAR-2009 08:02	0.509 g	50 mL	98.23183	SOIL

Reagent/Solvent Lot ID	Amount	Description
1093076	10 mL	HYDROCHLORIC ACID
1093074	1.25 mL	Nitric Acid CONC.

Comments QC Sample #226257001 is an orange brownish soil.

COMPANY - WIDE NONCONFORMANCE REPORT

Mo.Day Yr. 07-APR-09	Division: Federal	Quality Criteria: Specifications	Type: Process
Instrument Type: ICP	Test / Method: SW846 3050B/6010B	Matrix Type: Solid	Client Code: SNLS
Batch ID: 851615	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 226257 Application Issues: Failed Recovery for MS/PS Failed RPD for DUP			
Specification and Requirements		NRG Disposition:	
Nonconformance Description:			
1. Failed Recovery for MS/PS: QC 1201801018MS 2. Failed RPD for DUP: QC 1201801017DUP		1. The matrix spike recovery failed outside of the control limit for silver. A post spike was analyzed together with the samples and passes. 2. The RPD failed on duplicate for silver. Sample #226257001 is an orange brownish soil. Data are qualified and reported.	

Originator's Name:

Helen Camello 07-APR-09

Data Validator/Group Leader:

Louise Smith 08-APR-09

Quality Review:

Director:

Standard Logbook

Serial ID: UI080429-42 **Opened:** 02-MAY-08 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 29-APR-08 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 02-MAY-09 **Lot Number :** 1010734
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L +/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI080509-40 **Opened:** 04-AUG-08 **Amount :** 500 mL
Name: SILICON **Received:** 09-MAY-08 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 04-AUG-09 **Lot Number :** 0801721
Employee: Helen Camello **Solvent :** H2O/tr HF
Supplier: ENVIRNMENTAL EXPRESS
Description: SILICON 1000mg/L H2O/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI080710-40 **Opened:** 02-SEP-08 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 10-JUL-08 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 02-SEP-09 **Lot Number :** 0818931
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Standard Logbook

Serial ID: UI080710-41 **Opened:** 02-SEP-08 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 10-JUL-08 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 02-SEP-09 **Lot Number :** 0818932
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI081025-40 **Opened:** 08-JAN-09 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 25-OCT-08 **Catalog Number :** SGELMX38-500N
Type: Source Material **Expires:** 31-OCT-09 **Lot Number :** 4810406
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: RICCA
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI081025-41 **Opened:** 08-JAN-09 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 25-OCT-08 **Catalog Number :** SGELMX39-500B
Type: Source Material **Expires:** 31-OCT-09 **Lot Number :** 4810407
Employee: Helen Camello **Solvent :** 5%HNO3,TR.HF
Supplier: RICCA
Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L

Standard Logbook

Analyte	Concentration	Analyte	Concentration
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI081120-40 **Opened:** 12-JAN-09 **Amount :** 250 mL
Name: TRACE ICP Na-1000SOUR **Received:** 11-NOV-08 **Catalog Number :** HP100052-1
Type: Source Material **Expires:** 12-JAN-10 **Lot Number :** 0735234
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: ENVIRONMENTAL EXPRESS
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI090121-40 **Opened:** 22-JAN-09 **Amount :** 500 mL
Name: TRACE ICP Stock PQL Str **Received:** 20-JAN-09 **Catalog Number :** 160543-01-03
Type: Source Material **Expires:** 22-JAN-10 **Lot Number :** 1014592
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3+TrHF
Supplier: 02si
Description: TRACE ICP Stock PQL Standard
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	100 mg/L	Antimony	5 mg/L
Arsenic	7.5 mg/L	Barium	2.5 mg/L
Beryllium	2.5 mg/L	Boron	25 mg/L
Cadmium	2.5 mg/L	Calcium	50 mg/L
Chromium	2.5 mg/L	Cobalt	2.5 mg/L
Copper	5 mg/L	Iron	50 mg/L
Lead	5 mg/L	Magnesium	150 mg/L
Manganese	5 mg/L	Molybdenum	5 mg/L
Nickel	2.5 mg/L	Phosphorous	75 mg/L
Potassium	75 mg/L	Selenium	7.5 mg/L
Silicon	50 mg/L	Silver	2.5 mg/L
Sodium	75 mg/L	Strontium	2.5 mg/L
Sulfur	50 mg/L	Thallium	10 mg/L
Tin	5 mg/L	Titanium	2.5 mg/L
Uranium	25 mg/L	Vanadium	2.5 mg/L
Zinc	5 mg/L		

Serial ID: UI090209-42 **Opened:** 27-FEB-09 **Amount :** 500 mL
Name: SI 1000mg/L **Received:** 09-FEB-09 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 28-FEB-10 **Lot Number :** 1014829
Employee: Helen Camello **Solvent :** 0.3%H2O(NH4)2SiF6
Supplier: o2si

Standard Logbook

Description: Silicon 1000mg/L+/-0.3%in H2O(NH4)2SiF6

Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI090313-48 **Opened:** 24-MAR-09 **Amount :** 1000 mL
Name: Trace ICP ICSA **Received:** 18-MAR-09 **Catalog Number :** 160005-02
Type: Source Material **Expires:** 24-MAR-10 **Lot Number :** 1015380
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si

Description: Trace ICP Interferent Check Standard A

Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 UG/L	Calcium	500000 UG/L
Iron	200000 UG/L	Magnesium	500000 UG/L

Serial ID: UI090313-49.6 **Opened:** 27-MAR-09 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 18-MAR-09 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 28-MAR-09 **Lot Number :** 1015381
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si

Description: Trace ICP Inteferent Check Standard AB

Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Standard Logbook

Serial ID: UI090313-49.7 **Opened:** 30-MAR-09 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 18-MAR-09 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 31-MAR-09 **Lot Number :** 1015381
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI090319-40 **Opened:** 19-MAR-09 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 18-MAR-09 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 19-MAR-10 **Lot Number :** 1014962
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	10000 ug/L	Arsenic	10000 ug/L
Barium	15000 ug/L	Beryllium	3000 ug/L
Boron	5000 ug/L	Cadmium	10000 ug/L
Chromium	25000 ug/L	Cobalt	10000 ug/L
Copper	20000 ug/L	Lead	25000 ug/L
Manganese	10000 ug/L	Molybdenum	10000 ug/L
Nickel	10000 ug/L	Phosphorous	15000 ug/L
Potassium	300000 ug/L	Selenium	10000 ug/L
Silica	107000 ug/L	Silicon	50000 ug/L
Silver	1000 ug/L	Strontium	10000 ug/L
Sulfur	50000 ug/L	Thallium	10000 ug/L
Tin	10000 ug/L	Titanium	10000 ug/L

Standard Logbook

Analyte	Concentration	Analyte	Concentration
Vanadium	10000 ug/L	Zinc	15000 ug/L

Serial ID: UI090319-41 **Opened:** 19-MAR-09 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 18-MAR-09 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 19-MAR-10 **Lot Number :** 1014962
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Calcium	500000 ug/L
Iron	500000 ug/L	Magnesium	500000 ug/L
Sodium	500000 ug/L	Uranium	15000 ug/L

Serial ID: UI1096754-01 **Opened:** 24-MAR-09 **Lot Number :** 1015119
Name: METALSPIKE-1 **Received:** 24-MAR-09
Type: Source Material **Expires:** 24-MAR-10
Employee: Crystal Simon
Supplier: OS2I
Description: Metals Spike Mix I
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI1096758-06 **Opened:** 24-MAR-09 **Lot Number :** 1014415
Name: METALSPIKE-2 **Received:** 24-MAR-09
Type: Source Material **Expires:** 24-MAR-10
Employee: Crystal Simon
Supplier: OS2I
Description: Metals Spike Mix II
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL

Standard Logbook

Analyte	Concentration	Analyte	Concentration
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Serial ID: UI652380 **Opened:** 02-APR-07 **Amount :** 80 g
Name: METALSOIL7.5SRM **Received:** 02-APR-07 **Lot Number :** D049-540
Type: Source Material **Expires:** 02-APR-09
Employee: Bryan Davis **Verified:** 24-AUG-07
Supplier: ERA
Description: Metals Soil LCS (Reference) 7.5
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	7294 mg/kg	Antimony	121 mg/kg
Arsenic	257 mg/kg	Barium	475 mg/kg
Beryllium	90 mg/kg	Boron	139 mg/kg
Cadmium	116 mg/kg	Calcium	3720 mg/kg
Chromium	84 mg/kg	Cobalt	83 mg/kg
Copper	105 mg/kg	Iron	19956 mg/kg
Lead	161 mg/kg	Magnesium	2980 mg/kg
Manganese	398 mg/kg	Mercury	4.18 mg/kg
Molybdenum	86 mg/kg	Nickel	101 mg/kg
Phosphorous	743 mg/kg	Potassium	2387 mg/kg
Selenium	173 mg/kg	Silica	2201 mg/kg
Silicon	1029 mg/kg	Silver	133 mg/kg
Sodium	614 mg/kg	Strontium	169 mg/kg
Sulfur	206 mg/kg	Thallium	202 mg/kg
Tin	105 mg/kg	Titanium	382 mg/kg
Vanadium	166 mg/kg	Zinc	195 mg/kg

Serial ID: WI090327-42 **Opened:** 27-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1096372
Name: TRACE ICP 0.1 PPM STD. **Received:** 02-SEP-08
Type: Working **Expires:** 28-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI090327-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090327-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI090327-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090327-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090327-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090327-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI090327-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090327-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI090327-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI090327-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090327-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI090327-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090327-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI090327-43 **Opened:** 27-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1096372
Name: TRACE ICP 0.5/CCV STD. **Received:** 02-SEP-08
Type: Working **Expires:** 28-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI080710-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI080710-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI081120-40	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L
UI090209-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI090209-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L

Serial ID: WI090327-44 **Opened:** 27-MAR-09 **Solvent :** 3%HCL and 1 %HNO3 - 1096372
Name: TRACE ICP SCAL 1.0 **Received:** 02-SEP-08
Type: Working **Expires:** 28-MAR-09
Employee: Helen Camello
Supplier: o2si
Description: Trace ICP Calibration Standard 1.0ppm
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI080710-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI080710-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI090209-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI090209-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Serial ID: WI090327-45 **Opened:** 27-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1096372
Name: TRACE ICP S-10 STD **Received:** 02-MAY-08
Type: Working **Expires:** 28-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080429-42	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI080429-42	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI080429-42	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI080429-42	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI081120-40	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L

Serial ID: WI090327-46 **Opened:** 27-MAR-09 **Solvent :** 3%HCL AND 1%HNO3 -1096372
Name: ICP TRACE ICV **Received:** 31-OCT-08
Type: Working **Expires:** 28-MAR-09
Employee: Helen Camello
Supplier: GEL

Standard Logbook

Description: Initial Calibration Verification ICP Trace Metals

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080509-40	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI080509-40	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI081025-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI081025-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: WI090327-47

Opened: 27-MAR-09

Solvent :

3%HCL &1%HNO3-1096372

Name: PQL Working Standard

Received: 22-JAN-09

Type: Working

Expires: 28-MAR-09

Employee: Helen Camello

Supplier: 02si

Description: PQL Working Standard

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI090121-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI090121-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Arsenic	7.5 mg/L	2 mL	1000 mL	15 ug/L
UI090121-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI090121-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Calcium	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI090121-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Selenium	7.5 mg/L	2 mL	1000 mL	15 ug/L
UI090121-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Sodium	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI090121-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI090121-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: WI090330-42 **Opened:** 30-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1099298
Name: TRACE ICP 0.1 PPM STD. **Received:** 02-SEP-08
Type: Working **Expires:** 31-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI090330-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090330-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI090330-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090330-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090330-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090330-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI090330-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090330-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI090330-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI090330-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090330-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI090330-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090330-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI090330-43 **Opened:** 30-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1099298
Name: TRACE ICP 0.5/CCV STD. **Received:** 02-SEP-08
Type: Working **Expires:** 31-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI080710-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI080710-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI081120-40	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L
UI090209-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI090209-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L

Serial ID: WI090330-44 **Opened:** 30-MAR-09 **Solvent :** 3%HCL and 1 %HNO3 -1099298
Name: TRACE ICP SCAL 1.0 **Received:** 02-SEP-08
Type: Working **Expires:** 31-MAR-09
Employee: Helen Camello
Supplier: o2si
Description: Trace ICP Calibration Standard 1.0ppm
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI080710-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI080710-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI090209-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI090209-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Serial ID: WI090330-45 **Opened:** 30-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1099298
Name: TRACE ICP S-10 STD **Received:** 02-MAY-08
Type: Working **Expires:** 31-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080429-42	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI080429-42	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI080429-42	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI080429-42	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI081120-40	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L

Serial ID: WI090330-46 **Opened:** 30-MAR-09 **Solvent :** 3%HCL AND 1%HNO3 -1099298
Name: ICP TRACE ICV **Received:** 31-OCT-08
Type: Working **Expires:** 31-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080509-40	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI080509-40	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI081025-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI081025-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: WI090330-47 **Opened:** 30-MAR-09 **Solvent :** 3%HCL &1%HNO3-1099298
Name: PQL Working Standard **Received:** 22-JAN-09
Type: Working **Expires:** 31-MAR-09
Employee: Helen Camello
Supplier: 02si
Description: PQL Working Standard
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI090121-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI090121-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Arsenic	7.5 mg/L	2 mL	1000 mL	15 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI090121-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI090121-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Calcium	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI090121-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Selenium	7.5 mg/L	2 mL	1000 mL	15 ug/L
UI090121-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Sodium	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI090121-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI090121-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: 1093074 **Opened:** 16-MAR-09 **Lot Number :** H02026 L
Name: I-HNO3 **Received:** 16-MAR-09
Type: Reagent/Solvent **Expires:** 16-MAR-10
Employee: Anthony Green
Supplier: BAKER
Description: Nitric Acid CONC.
Comments: None

Serial ID: 1093076 **Opened:** 16-MAR-09 **Lot Number :** G51040
Name: I-HCL **Received:** 16-MAR-09 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 16-MAR-10
Employee: Anthony Green
Supplier: J.T. BAKER
Description: HYDROCHLORIC ACID
Comments: None

Standard Logbook

Serial ID:	<u>1096372</u>	Opened:	<u>23-MAR-09</u>	Amount :	<u>20 L</u>
Name:	<u>B-ICP-RINSE SOLN</u>	Received:	<u>23-MAR-09</u>	Lot Number :	<u>G2L054+G20046</u>
Type:	<u>Reagent/Solvent</u>	Expires:	<u>29-MAR-09</u>	Solvent :	<u>3%HCL+1%HNO3</u>
Employee:	<u>Helen Camello</u>				
Supplier:	<u>GEL</u>				
Description:	<u>3%HCL+1%HNO3 RINSE SOLN.</u>				
Comments:	<u>None</u>				

Serial ID:	<u>1099298</u>	Opened:	<u>30-MAR-09</u>	Amount :	<u>20 L</u>
Name:	<u>B-ICP-RINSE SOLN</u>	Received:	<u>20-MAR-09</u>	Lot Number :	<u>G2L054+G20046</u>
Type:	<u>Reagent/Solvent</u>	Expires:	<u>05-APR-09</u>	Solvent :	<u>3%HCL+1%HNO3</u>
Employee:	<u>Helen Camello</u>				
Supplier:	<u>GEL</u>				
Description:	<u>3%HCL+1%HNO3 RINSE SOLN.</u>				
Comments:	<u>None</u>				

Metals Analysis

Case Narrative

**Metals Fractional Narrative
Sandia National Labs (SNLS)
SDG 226257-1**

Sample Analysis

Sample ID	Client ID
226265001	087120-001
1201801076	Method Blank (MB) ICP
1201801077	Laboratory Control Sample (LCS)
1201801082	Laboratory Control Sample Duplicate (LCSD)
1201801081	226265001(087120-001L) Serial Dilution (SD)
1201801080	226265001(087120-001PS) Post Spike (PS)

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

Method/Analysis Information

Analytical Batch: 851650
Prep Batch : 851649
Standard Operating Procedures: GL-MA-E-013 REV# 19 and GL-MA-E-006 REV# 9
Analytical Method: SW846 3005/6010B
Prep Method : SW846 3005A

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 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.

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 MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) obtained from the laboratory control sample (LCS) and its duplicate (LCSD) is evaluated based on acceptance criteria of 20% and it is within the required acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 226265001 (087120-001).

Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the PS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The PS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the absence of matrix interferences.

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL for CVAA, 50X the IDL for ICP, and 100X the IDL 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.

Sample Dilutions

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

Preparation Information

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

Miscellaneous Information**Nonconformance Documentation**

Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

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: By Davis Date: 4-14-09

Quality Control Summary

METALS
-2a-
Initial and Continuing Calibration Verification

SDG No: 226257-1

Contract: SNLS00207

Lab Code: GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Acceptance Window (%R)</u>	<u>M</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
ICV01	Silver	249	ug/L	250	ug/L	99.7	90.0 – 110.0	P	24-MAR-09 06:30	032409-1
CCV01	Silver	510	ug/L	500	ug/L	102.1	90.0 – 110.0	P	24-MAR-09 07:14	032409-1
CCV02	Silver	503	ug/L	500	ug/L	100.6	90.0 – 110.0	P	24-MAR-09 08:17	032409-1
CCV03	Silver	508	ug/L	500	ug/L	101.7	90.0 – 110.0	P	24-MAR-09 09:12	032409-1

METALS
-2b-
CRDL Standard for AA & ICP

SDG No: 226257-1

Contract: SNLS00207

Lab Code: GEL

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source Solutions Plus

Instrument ID: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Advisory Limits (%R)</u>	<u>M</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
PQL01	Silver	4.98	ug/L	5	ug/L	99.63	70.0 – 130.0	P	24-MAR-09 06:43	032409-1

Metals
-3a-
Initial and Continuing Calibration Blank Summary

SDG No.: 226257-1

Contract: SNLS00207

Lab Code: GEL

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u> <u>ug/L</u>	<u>Acceptance</u>	<u>Conc</u> <u>Qual</u>	<u>MDL</u>	<u>RDL</u>	<u>Matrix</u>	<u>M</u>	<u>Analysis</u> <u>Date/Time</u>	<u>Run</u>
ICB01	Silver	1.0	+/-5	U	1.0	5.0	LIQ	P	24-MAR-09 06:37	032409-1
CCB01	Silver	1.0	+/-5	U	1.0	5.0	LIQ	P	24-MAR-09 07:21	032409-1
CCB02	Silver	1.0	+/-5	U	1.0	5.0	LIQ	P	24-MAR-09 08:24	032409-1
CCB03	Silver	1.0	+/-5	U	1.0	5.0	LIQ	P	24-MAR-09 09:19	032409-1

METALS
-4-
Interference Check Sample

SDG No: 226257-1

Contract: SNLS00207

Lab Code: GEL

ICS: O2Si

Instrument: OPTIMA3

<u>Sample ID</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>True Value</u>	<u>Units</u>	<u>% Recovery</u>	<u>Acceptance Window (%R)</u>	<u>Analysis Date/Time</u>	<u>Run Number</u>
ICSA01	Silver	4.29	ug/L					24-MAR-09 06:50	032409-1
ICSAB01	Silver	282	ug/L	250	ug/L	113	80.0 - 120.0	24-MAR-09 06:56	032409-1

METALS
-13-
SAMPLE PREPARATION SUMMARY

SDG No: 226257-1

Method Type: P

Contract: SNLS00207

Lab Code: GEL

<u>Sample ID</u>	<u>Client ID</u>	<u>Sample Type</u>	<u>Matrix</u>	<u>Prep Date</u>	<u>Initial Sample Size</u>	<u>Final Sample Volume</u>	<u>Percent Solids</u>
Batch Number	851649						
1201801076	MB for batch 851649	MB	WATER	19-MAR-09	50mL	50mL	
1201801077	LCS for batch 851649	LCS	WATER	19-MAR-09	50mL	50mL	
1201801082	LCSD for batch 851649	LCSD	WATER	19-MAR-09	50mL	50mL	
226265001	087120-001	SAMPLE	WATER	19-MAR-09	50mL	50mL	

Metals
-14-
Analysis Run Log

Contract: SNLS00207**Lab Code:** GEL**Inst Name:** OPTIMA3**Start Date:** 24-MAR-09**End Date:** 24-MAR-09**Client Sdg:** 226257-1**Method** P**Data File:** 032409-1

Samp No.	D/F	Run Time	Ag
S0.0	1	05:58	X
S0.1	1	06:05	X
S0.5	1	06:11	X
SCAL	1	06:18	X
S10	1	06:24	
ICV01	1	06:30	X
ICB01	1	06:37	X
PQL01	1	06:43	X
ICSA01	1	06:50	X
ICSAB01	1	06:56	X
LR01	1	07:02	X
LR02	1	07:07	X
CCV01	1	07:14	X
CCB01	1	07:21	X
ZZZZZZ	1	07:35	
ZZZZZZ	1	07:42	
ZZZZZZ	1	07:49	
ZZZZZZ	1	07:56	
ZZZZZZ	1	08:03	
ZZZZZZ	5	08:10	
CCV02	1	08:17	X
CCB02	1	08:24	X
1201801076	1	08:31	X
1201801077	1	08:38	X
1201801082	1	08:44	X
226265001	1	08:51	X
1201801080	1	08:58	X
1201801081	5	09:05	X
CCV03	1	09:12	X
CCB03	1	09:19	X

Standards

METALS
-10-
Instrument Detection Limits

SDG NO. 226257-1

Contract: SNLS00207

Lab Code: GEL

MDL Effective Date: 23-JUL-07

	<u>Analyte</u>	<u>Wavelength</u> <u>(nm)</u>	<u>MDL</u> <u>ug/L</u>	<u>RDL</u> <u>ug/L</u>
ICP				
LIQUID	Silver	328.068	1.0	5

METALS
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Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257-1

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Aluminum	Antimony	Arsenic	Barium	Beryllium
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.02397	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	-0.44940	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	-0.18516	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	-0.33886	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.12355	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	-0.00719	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.19671	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	-0.02065	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257-1

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Boron	Cadmium	Chromium	Cobalt	Copper
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	24.6001	0.00000	0.00000
Arsenic	188.979	0.52529	0.00000	-0.98646	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	5.12071	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.38952	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	-31.5465	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.45500
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.63859	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	199.36
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	5.22870	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.35099	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	1.93161	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.39273	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	1.33459

METALS
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Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257-1

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Iron	Lead	Magnesium	Manganese	Molybdenum
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	27.7411
Antimony	206.836	-0.01812	0.00000	0.00000	0.00000	19.4646
Arsenic	188.979	-0.21752	0.00000	0.00000	0.00000	1.34645
Barium	233.527	0.01130	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.15442	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.10069	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	-0.01223	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.01425	0.00000	0.00000	0.00000	-2.29442
Copper	324.752	-0.02702	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.08168	0.00000	0.00000	0.00000	-2.44485
Magnesium	279.077	0.57441	0.00000	0.00000	0.00000	-20.2401
Manganese	257.61	-0.10548	0.00000	0.01930	0.00000	0.00000
Molybdenum	202.031	-0.06417	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.75191	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	-0.21880	0.00000	0.00228	12.4291	11.5866
Selenium	196.026	-2.83667	0.00000	0.00000	0.00000	-1.55242
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	17.4444
Silver	328.068	-0.31996	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	-4.64362	0.00000
Tin	189.927	-0.01397	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.12289	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.14647	0.00000	-0.01660	0.00000	-14.5869
Zinc	213.857	0.09734	0.00000	0.03466	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257-1

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Nickel	Phosphorous	Potassium	Selenium	Silicon
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	-0.64279	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.33191	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	6.38465	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257-1

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Silver	Strontium	Sulfur	Thallium	Tin
Parmname	Wavelength					
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	-16.3819
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	-13.8713
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	13.4210
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL

GEL Job No: 226257-1

Contract: SNLS00207

Instrument: OPTIMA3

Effective Dates: 01-FEB-09

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Titanium	Uranium	Vanadium	Zinc
Parmname	Wavelength				
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	2.83685	0.00000	-2.97302	0.00000
Arsenic	188.979	-4.61098	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	-2.24883	0.00000
Beryllium	313.107	-2.32423	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.32181	-1.53369	0.00000
Cobalt	228.616	2.12623	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.85359	-3.97628	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	-8.67156	0.00000	2.18873	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.44145	0.00000	0.00000
Uranium	409.014	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	1.10141	-1.94183	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000

METALS
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Linear Ranges

SDG NO. 226257-1

Contract: SNLS00207

Lab Code: GEL

Instrument ID OPTIMA3

<u>Analyte</u>	<u>Integration Time</u>	<u>LDR</u>	<u>Units</u>	<u>Effective Date</u>
Silver		1000	ug/L	01-FEB-09

Miscellaneous

Prep LogBook

Analyst: CXS3 Verified by: _____

Batch: 851649

Lab SOP: GL-MA-E-006 REV# 9

Type	Sample Id	Lot. Id	Spike Amount	Spike Units
LCS	1201801077	UI090228-01	.25	mL
LCS	1201801077	UI090228-06	.25	mL
LCSD	1201801082	UI090228-01	.25	mL
LCSD	1201801082	UI090228-06	.25	mL

Sample Type	Sample ID	Parent Sample ID	Method	Prep Date	Initial Wt.	Final Volume	Prep Factor	Matrix
MB	1201801076		SW846 3005A	19-MAR-2009 08:20	50 mL	50 mL	1	WATER
LCS	1201801077		SW846 3005A	19-MAR-2009 08:20	50 mL	50 mL	1	WATER
LCSD	1201801082		SW846 3005A	19-MAR-2009 08:20	50 mL	50 mL	1	WATER
SAMPLE	226265001		SW846 3005A	19-MAR-2009 08:20	50 mL	50 mL	1	WATER
SDILT	1201801081	226265001	SW846 3005A	19-MAR-2009 08:20	50 mL	50 mL	1	WATER

Comments

Reagent/Solvent Lot ID	Amount	Description
1093076	2.5 mL	HYDROCHLORIC ACID
1093074	1 mL	Nitric Acid CONC.

Standard Logbook

Serial ID: UI080429-42 **Opened:** 02-MAY-08 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 29-APR-08 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 02-MAY-09 **Lot Number :** 1010734
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L +/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI080509-40 **Opened:** 04-AUG-08 **Amount :** 500 mL
Name: SILICON **Received:** 09-MAY-08 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 04-AUG-09 **Lot Number :** 0801721
Employee: Helen Camello **Solvent :** H2O/tr HF
Supplier: ENVIRNMENTAL EXPRESS
Description: SILICON 1000mg/L H2O/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI080710-40 **Opened:** 02-SEP-08 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 10-JUL-08 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 02-SEP-09 **Lot Number :** 0818931
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Standard Logbook

Serial ID: UI080710-41 **Opened:** 02-SEP-08 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 10-JUL-08 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 02-SEP-09 **Lot Number :** 0818932
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI081025-40 **Opened:** 08-JAN-09 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 25-OCT-08 **Catalog Number :** SGELMX38-500N
Type: Source Material **Expires:** 31-OCT-09 **Lot Number :** 4810406
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: RICCA
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI081025-41 **Opened:** 08-JAN-09 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 25-OCT-08 **Catalog Number :** SGELMX39-500B
Type: Source Material **Expires:** 31-OCT-09 **Lot Number :** 4810407
Employee: Helen Camello **Solvent :** 5%HNO3,TR.HF
Supplier: RICCA
Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L

Standard Logbook

Analyte	Concentration	Analyte	Concentration
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI081120-40 **Opened:** 12-JAN-09 **Amount :** 250 mL
Name: TRACE ICP Na-1000SOUR **Received:** 11-NOV-08 **Catalog Number :** HP100052-1
Type: Source Material **Expires:** 12-JAN-10 **Lot Number :** 0735234
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: ENVIRONMENTAL EXPRESS
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI090121-40 **Opened:** 22-JAN-09 **Amount :** 500 mL
Name: TRACE ICP Stock PQL Str **Received:** 20-JAN-09 **Catalog Number :** 160543-01-03
Type: Source Material **Expires:** 22-JAN-10 **Lot Number :** 1014592
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3+TrHF
Supplier: 02si
Description: TRACE ICP Stock PQL Standard
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	100 mg/L	Antimony	5 mg/L
Arsenic	7.5 mg/L	Barium	2.5 mg/L
Beryllium	2.5 mg/L	Boron	25 mg/L
Cadmium	2.5 mg/L	Calcium	50 mg/L
Chromium	2.5 mg/L	Cobalt	2.5 mg/L
Copper	5 mg/L	Iron	50 mg/L
Lead	5 mg/L	Magnesium	150 mg/L
Manganese	5 mg/L	Molybdenum	5 mg/L
Nickel	2.5 mg/L	Phosphorous	75 mg/L
Potassium	75 mg/L	Selenium	7.5 mg/L
Silicon	50 mg/L	Silver	2.5 mg/L
Sodium	75 mg/L	Strontium	2.5 mg/L
Sulfur	50 mg/L	Thallium	10 mg/L
Tin	5 mg/L	Titanium	2.5 mg/L
Uranium	25 mg/L	Vanadium	2.5 mg/L
Zinc	5 mg/L		

Serial ID: UI090209-42 **Opened:** 27-FEB-09 **Amount :** 500 mL
Name: SI 1000mg/L **Received:** 09-FEB-09 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 28-FEB-10 **Lot Number :** 1014829
Employee: Helen Camello **Solvent :** 0.3%H2O(NH4)2SiF6
Supplier: o2si

Standard Logbook

Description: Silicon 1000mg/L +/- 0.3% in H₂O(NH₄)₂SiF₆

Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI090228-01 **Opened:** 28-FEB-09 **Lot Number :** 1014267

Name: METALSPIKE-1 **Received:** 26-FEB-09

Type: Source Material **Expires:** 28-FEB-10

Employee: Francena Armstrong

Supplier: OS2I

Description: Metals Spike Mix I

Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI090228-06 **Opened:** 28-FEB-09 **Lot Number :** 1014415

Name: METALSPIKE-2 **Received:** 26-FEB-09

Type: Source Material **Expires:** 28-FEB-10

Employee: Francena Armstrong

Supplier: OS2I

Description: Metals Spike Mix II

Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Standard Logbook

Serial ID: UI090313-48 **Opened:** 24-MAR-09 **Amount :** 1000 mL
Name: Trace ICP ICSA **Received:** 18-MAR-09 **Catalog Number :** 160005-02
Type: Source Material **Expires:** 24-MAR-10 **Lot Number :** 1015380
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 UG/L	Calcium	500000 UG/L
Iron	200000 UG/L	Magnesium	500000 UG/L

Serial ID: UI090313-49.3 **Opened:** 24-MAR-09 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 18-MAR-09 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 25-MAR-09 **Lot Number :** 1015381
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI090319-40 **Opened:** 19-MAR-09 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 18-MAR-09 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 19-MAR-10 **Lot Number :** 1014962
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Standard Logbook

Analyte	Concentration	Analyte	Concentration
Antimony	10000 ug/L	Arsenic	10000 ug/L
Barium	15000 ug/L	Beryllium	3000 ug/L
Boron	5000 ug/L	Cadmium	10000 ug/L
Chromium	25000 ug/L	Cobalt	10000 ug/L
Copper	20000 ug/L	Lead	25000 ug/L
Manganese	10000 ug/L	Molybdenum	10000 ug/L
Nickel	10000 ug/L	Phosphorous	15000 ug/L
Potassium	300000 ug/L	Selenium	10000 ug/L
Silica	107000 ug/L	Silicon	50000 ug/L
Silver	1000 ug/L	Strontium	10000 ug/L
Sulfur	50000 ug/L	Thallium	10000 ug/L
Tin	10000 ug/L	Titanium	10000 ug/L
Vanadium	10000 ug/L	Zinc	15000 ug/L

Serial ID: UI090319-41 **Opened:** 19-MAR-09 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 18-MAR-09 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 19-MAR-10 **Lot Number :** 1014962
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Calcium	500000 ug/L
Iron	500000 ug/L	Magnesium	500000 ug/L
Sodium	500000 ug/L	Uranium	15000 ug/L

Serial ID: WI090324-42 **Opened:** 24-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1096372
Name: TRACE ICP 0.1 PPM STD. **Received:** 02-SEP-08
Type: Working **Expires:** 25-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI090324-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090324-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090324-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI090324-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090324-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090324-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI090324-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090324-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI090324-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI090324-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI090324-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI090324-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI090324-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI090324-43 **Opened:** 24-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1096372
Name: TRACE ICP 0.5/CCV STD. **Received:** 02-SEP-08
Type: Working **Expires:** 25-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI080710-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI080710-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI080710-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI080710-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI081120-40	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L
UI090209-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI090209-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L

Serial ID: WI090324-44 **Opened:** 24-MAR-09 **Solvent :** 3%HCL and 1 %HNO3 - 1096372
Name: TRACE ICP SCAL 1.0 **Received:** 02-SEP-08
Type: Working **Expires:** 25-MAR-09
Employee: Helen Camello
Supplier: o2si
Description: Trace ICP Calibration Standard 1.0ppm
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080710-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI080710-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI080710-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI080710-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI080710-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI090209-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI090209-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Serial ID: WI090324-45 **Opened:** 24-MAR-09 **Solvent :** 3%HCL and 1%HNO3 -1096372
Name: TRACE ICP S-10 STD **Received:** 02-MAY-08
Type: Working **Expires:** 25-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080429-42	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI080429-42	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI080429-42	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI080429-42	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI081120-40	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L

Serial ID: WI090324-46 **Opened:** 24-MAR-09 **Solvent :** 3%HCL AND 1%HNO3 -1096372
Name: ICP TRACE ICV **Received:** 31-OCT-08
Type: Working **Expires:** 25-MAR-09
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI080509-40	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI080509-40	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI081025-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI081025-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI081025-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI081025-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI081025-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI081025-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: WI090324-47 **Opened:** 24-MAR-09 **Solvent :** 3%HCL &1%HNO3-1096372
Name: PQL Working Standard **Received:** 22-JAN-09
Type: Working **Expires:** 25-MAR-09
Employee: Helen Camello
Supplier: 02si
Description: PQL Working Standard
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI090121-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI090121-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Arsenic	7.5 mg/L	2 mL	1000 mL	15 ug/L
UI090121-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI090121-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI090121-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Calcium	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI090121-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Selenium	7.5 mg/L	2 mL	1000 mL	15 ug/L
UI090121-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Sodium	75 mg/L	2 mL	1000 mL	150 ug/L
UI090121-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI090121-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI090121-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI090121-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI090121-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI090121-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: 1093074 **Opened:** 16-MAR-09 **Lot Number :** H02026 L
Name: I-HNO3 **Received:** 16-MAR-09
Type: Reagent/Solvent **Expires:** 16-MAR-10
Employee: Anthony Green
Supplier: BAKER
Description: Nitric Acid CONC.
Comments: None

Serial ID: 1093076 **Opened:** 16-MAR-09 **Lot Number :** G51040
Name: I-HCL **Received:** 16-MAR-09 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 16-MAR-10
Employee: Anthony Green
Supplier: J.T. BAKER
Description: HYDROCHLORIC ACID
Comments: None

Standard Logbook

Serial ID: 1096372 **Opened:** 23-MAR-09 **Amount :** 20 L
Name: B-ICP-RINSE SOLN **Received:** 23-MAR-09 **Lot Number :** G2L054+G20046
Type: Reagent/Solvent **Expires:** 29-MAR-09 **Solvent :** 3%HCL+1%HNO3
Employee: Helen Camello
Supplier: GEL
Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Enclosure B

Analytical Data Review and Validation

Soil Samples from TTU

March 16, 2009

Analysis Request/Chain of Custody 612145

Sandia National Laboratories

Memorandum

Date: May 1, 2009

To: File

From: Kevin Lambert

Subject: Inorganic Data Review and Validation – SNL
Site: Soil Sampling at TTU
COC: 612145
SDG: 226257 and 226265
Laboratory: GEL
Project/Task: 1469.20.52
Analysis: Metals

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

Five soil samples and one aqueous sample were prepared and analyzed with approved procedures using method EPA 6010 (ICP). Data were reported for all required analytes. Problems were identified with the data package that result in the qualification of data.

1. For the aqueous sample, a laboratory replicate was not analyzed due to insufficient sample volume. An LCS/LCSD pair was analyzed to provide precision data for the samples and met QC acceptance criteria. The associated sample result was a non-detect and will be **qualified “UJ, RP1”** due to lack of matrix-specific precision data.
2. For soil samples, the MS recovery for Ag was < the lower QC acceptance limit but $\geq 30\%$. The associated sample results were detects and will be **qualified “J-, MS3.”**
3. For soil samples, the laboratory replicate relative percent difference for Ag was above the QC acceptance limit. The associated sample results were detects and will be **qualified “J, RP2”** due to poor replicate precision. It should be noted that Ag results have already been qualified due to poor MS recovery; no further qualification is necessary. All appropriate reason code(s) will be included to indicate the poor MS recovery.

Data are acceptable and reported QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times and Preservation

The samples were analyzed within the prescribed holding times and properly preserved.

Calibration

All initial and continuing calibration QC acceptance criteria were met except as follows. Initial calibration intercepts and correlation coefficients (R^2) values for target analytes were not reported and could not be evaluated. No sample data will be qualified as a result.

Reporting Limit Verification

All CRA/CRI recoveries met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks

Matrix Spike (MS)

All MS recoveries met QC acceptance criteria except as noted above in the summary section.

Laboratory Replicate

The replicate analyses met all QC acceptance criteria except as noted above in the summary section.

Laboratory Control Sample (LCS)

All LCS recoveries met QC acceptance criteria.

Detection Limits/Dilutions

All detection limits were properly reported. No samples were diluted except as follows. Sample 226257-009 was diluted 5X for Ag due to high concentration for this analysis.

ICP Interference Check Sample (ICS A and AB)

The results of the ICS A and AB analyses were not evaluated because the concentrations of Al, Ca, Fe, and Mg in the samples were < those in the ICS solutions. No sample data will be qualified as a result.

ICP Serial Dilution

The serial dilution analyses met all QC acceptance criteria.

Other QC

Equipment blank and a field duplicate pair were submitted on the AR/COC(s). There are no “required” review criteria for field duplicate analyses comparability; no data should be qualified as a result.

No other specific issues that affect data quality were identified.

Memorandum

Date: April 30, 2009

To: File

From: Kevin Lambert

Subject: HPLC Organic Data Review and Validation – SNL
Site: Soil Sampling at TTU
COC: 612145
SDG: 226257 and 226265
Laboratory: GEL
Project/Task: 1469.20.52
Analysis: High Explosives (HE)

See the attached Data Validation Worksheets for supporting documentation on the data review and validation. This validation was performed according to SNL/NM ER Project AOP 00-03 Rev 2.

Summary

Five soil samples and one aqueous sample were prepared and analyzed with accepted procedures using method EPA 8330 (HE). Data were reported for all required analytes. Problems were identified with the data package that result in the qualification of data.

1. For the aqueous sample, the confirmation RPD for nitrobenzene was >75% and the primary column result was <5X the practical quantitation limit (PQL) and the secondary column result was > the PQL and >10X the primary column result. The associated sample result was a detect and will be **qualified "R, V2."**
2. For the aqueous sample, an MS/MSD pair was not analyzed due to insufficient sample volume. An LCS/LCSD pair was analyzed to provide precision data for the samples and met QC acceptance criteria. All associated sample results that were non-detects will be **qualified "UJ, MS1"** due to lack of matrix-specific accuracy data. It should be noted that the nitrobenzene result has already been qualified due to poor confirmation RPD; no further qualification is necessary. All appropriate reason code(s) will be included to indicate the lack of matrix-specific accuracy data.

Data are acceptable except as noted above and reported QC measures appear to be adequate. The following sections discuss the data review and validation.

Holding Times/Preservation

The samples were analyzed within the prescribed holding time and properly preserved.

Calibration

All initial and continuing calibration met QC acceptance criteria.

Blanks

No target analytes were detected in the blanks.

Surrogates

All surrogate recoveries met QC acceptance criteria.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD analyses met all QC acceptance criteria except as noted above in the summary section.

Laboratory Control Sample (LCS)

All LCS recoveries met QC acceptance criteria.

Target Compound Identification/Confirmation

All continuing calibration verification compounds were within the established retention time windows. Detected compound results were confirmed on a second column and met QC acceptance criteria except as noted above in the summary section.

Detection Limits/Dilutions

All detection limits were properly reported. According to laboratory procedure, all sample and QC extracts were diluted 2X with HPLC grade water.

Other QC

Equipment blank and a field duplicate pair were submitted on the AR/COC(s). There are no “required” review criteria for field duplicate analyses comparability; no data should be qualified as a result.

No other specific issues that affect data quality were identified.

Data Type: Organic & Metals

[illegible]

Date: 05/01/09