



December 06, 2013

Mr. Jay Adler  
TLG Services, Inc.  
148 New Milford Rd. East  
Bridgewater, Connecticut 06752

Re: Radiochemistry Analysis  
Work Order: 337774

Dear Mr. Adler:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 19, 2013. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Erin Trent  
Project Manager

Purchase Order: Signed Quote GELP13-1296  
Enclosures

# **Certificate of Analysis**

## GEL LABORATORIES LLC

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

### Certificate of Analysis Report for

TLGS001 TLG Services, Inc.

Client SDG: 337774 GEL Work Order: 337774

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

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

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

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

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

Reviewed by



# GEL LABORATORIES LLC

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## 10 CFR Part 50/61 Certificate of Analysis

<b>GEL Sample ID:</b>	<b>337774001</b>	<b>Client:</b> TLG Services, Inc.	
<b>Client Sample ID:</b>	<b>SU 1.4 #3 (15–30 cm)</b>	<b>Collect Date:</b> August 14, 2013	
<b>Matrix:</b>	<b>Misc Solid</b>	<b>Receive Date:</b> November 19, 2013	
<b>Geometry Received:</b>		<b>Report Date:</b> December 06, 2013	

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Gamma Spec							
Be-7	11/20/13	U	1.87E-01	8.32E-01	1.34E+00		pCi/g
Na-22	11/20/13	U	-1.40E-02	3.63E-02	6.52E-02		pCi/g
K-40	11/20/13	3	1.52E+01	1.16E+00	4.42E-01		pCi/g
Cr-51	11/20/13	U	1.97E-01	2.01E+00	3.74E+00		pCi/g
Mn-54	11/20/13	U	9.06E-04	3.61E-02	6.64E-02		pCi/g
Fe-59	11/20/13	U	-3.80E-01	2.79E-01	4.32E-01		pCi/g
Co-56	11/20/13	U	-4.92E-02	8.38E-02	1.22E-01		pCi/g
Co-57	11/20/13	UI	0.00E+00	4.24E-02	5.52E-02		pCi/g
Co-58	11/20/13	U	-6.95E-02	7.02E-02	1.18E-01		pCi/g
Co-60	11/20/13	3	1.52E-01	4.43E-02	5.56E-02		pCi/g
Zn-65	11/20/13	U	-2.95E-01	1.49E-01	1.73E-01		pCi/g
Y-88	11/20/13	U	-2.62E-02	4.61E-02	7.97E-02		pCi/g
Zr-95	11/20/13	U	4.07E-02	1.45E-01	2.74E-01		pCi/g
Nb-94	11/20/13	U	8.19E-03	2.88E-02	5.35E-02		pCi/g
Nb-95	11/20/13	3,U	1.35E-01	1.09E-01	1.49E-01		pCi/g
Ru-106	11/20/13	U	1.15E-01	3.09E-01	5.67E-01		pCi/g
Ag-110m	11/20/13	U	-4.63E-02	4.94E-02	8.26E-02		pCi/g
Sn-113	11/20/13	U	1.37E-03	5.57E-02	1.02E-01		pCi/g
Sb-124	11/20/13	U	-3.04E-02	1.32E-01	2.52E-01		pCi/g
Sb-125	11/20/13	U	-3.11E-02	7.04E-02	1.24E-01		pCi/g
Cs-134	11/20/13	3,U	7.16E-02	5.23E-02	7.36E-02		pCi/g
Cs-136	11/20/13	U	1.97E-01	6.75E+00	1.23E+01		pCi/g
Cs-137	11/20/13	U	-1.93E-02	3.22E-02	5.43E-02	1.00E-01	pCi/g
Ba-133	11/20/13	U	9.48E-03	3.65E-02	5.95E-02		pCi/g
Ba-140	11/20/13	U	1.43E+00	1.81E+01	3.30E+01		pCi/g
Ce-139	11/20/13	U	-2.31E-02	3.32E-02	5.77E-02		pCi/g
Ce-141	11/20/13	U	2.75E-02	2.65E-01	4.73E-01		pCi/g
Ce-144	11/20/13	U	1.70E-01	1.77E-01	3.01E-01		pCi/g
Nd-147	11/20/13	U	-5.65E+01	8.25E+01	1.41E+02		pCi/g
Pm-144	11/20/13	U	-6.18E-03	3.38E-02	6.16E-02		pCi/g
Pm-146	11/20/13	U	2.88E-03	3.38E-02	6.17E-02		pCi/g
Eu-152	11/20/13	3	2.66E-01	1.33E-01	1.31E-01		pCi/g
Eu-154	11/20/13	U	-3.69E-02	9.87E-02	1.78E-01		pCi/g
Eu-155	11/20/13	UI	0.00E+00	8.98E-02	1.22E-01		pCi/g
Ir-192	11/20/13	U	-3.61E-02	5.10E-02	9.04E-02		pCi/g
Hg-203	11/20/13	3,U	1.16E-01	1.07E-01	1.87E-01		pCi/g

- Note(s):** 1. Calculated MDAs are a-posteriori values at the 95% confidence level.  
 2. Activity is reported on a dry weight basis unless otherwise indicated in the case narrative and is decay corrected to the sample collect date.  
 3. Results are statistically positive at the 95% confidence level. (activity is greater than or equal to the two sigma uncertainty)

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
 UI Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES LLC

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## 10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 337774001 Client: TLG Services, Inc.  
Client Sample ID: SU 1.4 #3 (15-30 cm) Collect Date: August 14, 2013  
Matrix: Misc Solid Receive Date: November 19, 2013  
Geometry Received: Report Date: December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Tl-208	11/20/13	3	2.54E-01	5.22E-02	5.00E-02		pCi/g
Pb-210	11/20/13	3	1.23E+00	7.25E-01	6.02E-01		pCi/g
Pb-212	11/20/13	3	9.24E-01	7.88E-02	7.79E-02		pCi/g
Pb-214	11/20/13	3	6.41E-01	1.10E-01	1.86E-01		pCi/g
Bi-212	11/20/13	UI	0.00E+00	6.63E-01	9.47E-01		pCi/g
Bi-214	11/20/13	3	4.61E-01	9.95E-02	9.75E-02		pCi/g
Ra-228	11/20/13	3	8.46E-01	2.27E-01	1.89E-01		pCi/g
Ac-228	11/20/13	3	8.46E-01	2.27E-01	1.89E-01		pCi/g
Th-234	11/20/13	3	7.71E-01	6.68E-01	7.17E-01		pCi/g
U-235	11/20/13	U	-7.49E-02	1.47E-01	2.56E-01		pCi/g
U-238	11/20/13	3	7.71E-01	6.68E-01	7.17E-01		pCi/g
Np-239	11/20/13	U	-1.33E-02	3.02E-01	4.84E-01		pCi/g
Am-241	11/20/13	U	1.53E-02	4.19E-02	7.10E-02		pCi/g

Note(s): 1. Calculated MDAs are a-posteriori values at the 95% confidence level.  
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UI Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES, LLC

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## 10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 337774001

Client: TLG Services, Inc.

Client Sample ID: SU 1.4 #3 (15–30 cm)

Collect Date: August 14, 2013

Matrix: Misc Solid

Receive Date: November 19, 2013

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac-228	8.46E-01	pCi/g	003.780
Bi-214	4.61E-01	pCi/g	002.061
Co-60	1.52E-01	pCi/g	000.681
Eu-152	2.66E-01	pCi/g	001.186
Pb-210	1.23E+00	pCi/g	005.487
Pb-212	9.24E-01	pCi/g	004.130
Pb-214	6.41E-01	pCi/g	002.863
K-40	1.52E+01	pCi/g	068.007
Ra-228	8.46E-01	pCi/g	003.780
Tl-208	2.54E-01	pCi/g	001.134
Th-234	7.71E-01	pCi/g	003.445
U-238	7.71E-01	pCi/g	003.445
Total Activity:	2.24E+01	Total % Abundance:	100.00

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## 10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 337774002  
Client Sample ID: SU 4.2 #1  
Matrix: Soil  
Geometry Received:

Client: TLG Services, Inc.  
Collect Date: October 22, 2013  
Receive Date: November 19, 2013  
Report Date: December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Gamma Spec							
Be-7	11/20/13	U	1.84E-02	4.80E-01	8.54E-01		pCi/g
Na-22	11/20/13	U	-1.78E-04	2.83E-02	5.55E-02		pCi/g
K-40	11/20/13	3	1.61E+00	5.90E-01	5.33E-01		pCi/g
Cr-51	11/20/13	U	1.89E-01	4.34E-01	8.28E-01		pCi/g
Mn-54	11/20/13	U	-8.79E-03	2.86E-02	5.14E-02		pCi/g
Fe-59	11/20/13	U	5.01E-02	7.93E-02	1.69E-01		pCi/g
Co-56	11/20/13	U	-1.50E-02	3.41E-02	5.99E-02		pCi/g
Co-57	11/20/13	3	7.50E-02	2.87E-02	2.70E-02		pCi/g
Co-58	11/20/13	U	1.06E-02	3.08E-02	6.18E-02		pCi/g
Co-60	11/20/13	3	1.09E-01	6.00E-02	6.58E-02		pCi/g
Zn-65	11/20/13	U	-1.04E-01	8.40E-02	1.33E-01		pCi/g
Y-88	11/20/13	U	-1.61E-03	3.65E-02	7.38E-02		pCi/g
Zr-95	11/20/13	U	-4.74E-02	6.08E-02	1.03E-01		pCi/g
Nb-94	11/20/13	U	5.28E-03	2.49E-02	4.84E-02		pCi/g
Nb-95	11/20/13	U	-2.27E-02	3.70E-02	6.40E-02		pCi/g
Ru-106	11/20/13	U	-7.07E-02	2.49E-01	4.59E-01		pCi/g
Ag-110m	11/20/13	U	1.78E-03	3.69E-02	7.32E-02		pCi/g
Sn-113	11/20/13	U	-1.85E-02	4.82E-02	8.54E-02		pCi/g
Sb-124	11/20/13	U	-4.58E-02	9.89E-02	1.78E-01		pCi/g
Sb-125	11/20/13	U	2.38E-02	9.52E-02	1.75E-01		pCi/g
Cs-134	11/20/13	U	3.97E-03	3.15E-02	6.02E-02		pCi/g
Cs-136	11/20/13	U	-1.01E-01	1.60E-01	2.81E-01		pCi/g
Cs-137	11/20/13	3	4.07E+00	1.75E-01	4.96E-02	1.00E-01	pCi/g
Ba-133	11/20/13	U	-5.50E-03	3.84E-02	6.13E-02		pCi/g
Ba-140	11/20/13	U	4.62E-02	4.44E-01	8.59E-01		pCi/g
Ce-139	11/20/13	U	6.74E-04	2.00E-02	3.66E-02		pCi/g
Ce-141	11/20/13	U	1.97E-02	5.02E-02	9.09E-02		pCi/g
Ce-144	11/20/13	U	2.95E-02	1.12E-01	2.13E-01		pCi/g
Nd-147	11/20/13	U	-1.55E-01	1.18E+00	2.21E+00		pCi/g
Pm-144	11/20/13	U	-7.96E-03	2.58E-02	4.71E-02		pCi/g
Pm-146	11/20/13	U	-2.61E-02	5.26E-02	9.07E-02		pCi/g
Eu-152	11/20/13	U	1.19E-01	1.24E-01	1.73E-01		pCi/g
Eu-154	11/20/13	U	6.44E-03	8.10E-02	1.61E-01		pCi/g
Eu-155	11/20/13	U	4.95E-02	6.56E-02	9.62E-02		pCi/g
Ir-192	11/20/13	U	-1.30E-02	3.10E-02	5.62E-02		pCi/g
Hg-203	11/20/13	U	2.00E-02	3.45E-02	6.54E-02		pCi/g

Note(s): 1. Calculated MDAs are a-posteriori values at the 95% confidence level.

2. Activity is reported on a dry weight basis unless otherwise indicated in the case narrative and is decay corrected to the sample collect date.

3. Results are statistically positive at the 95% confidence level. (activity is greater than or equal to the two sigma uncertainty)

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

UI Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES LLC

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## 10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 337774002  
Client Sample ID: SU 4.2 #1  
Matrix: Soil  
Geometry Received:

Client: TLG Services, Inc.  
Collect Date: October 22, 2013  
Receive Date: November 19, 2013  
Report Date: December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Tl-208	11/20/13	3	1.18E-01	5.22E-02	4.92E-02		pCi/g
Pb-210	11/20/13	3	2.01E+00	4.32E-01	4.77E-01		pCi/g
Pb-212	11/20/13	3	2.50E-01	8.25E-02	7.19E-02		pCi/g
Pb-214	11/20/13	3	4.17E-01	1.42E-01	1.12E-01		pCi/g
Bi-212	11/20/13	U	4.04E-01	5.11E-01	8.33E-01		pCi/g
Bi-214	11/20/13	3	3.59E-01	1.10E-01	1.01E-01		pCi/g
Ra-228	11/20/13	UI	0.00E+00	1.75E-01	3.02E-01		pCi/g
Ac-228	11/20/13	UI	0.00E+00	1.75E-01	3.02E-01		pCi/g
Th-234	11/20/13	3	6.60E-01	4.87E-01	4.91E-01		pCi/g
U-235	11/20/13	U	4.95E-02	1.28E-01	2.18E-01		pCi/g
U-238	11/20/13	3	6.60E-01	4.87E-01	4.91E-01		pCi/g
Np-239	11/20/13	U	-3.12E-01	3.08E-01	3.62E-01		pCi/g
Am-241	11/20/13	U	-1.83E-02	2.66E-02	4.87E-02		pCi/g

Note(s): 1. Calculated MDAs are a-posteriori values at the 95% confidence level.  
2. Activity is reported on a dry weight basis unless otherwise indicated in the case narrative and is decay corrected to the sample collect date.  
3. Results are statistically positive at the 95% confidence level. (activity is greater than or equal to the two sigma uncertainty)

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

UI Gamma Spectroscopy—Uncertain identification



# GEL LABORATORIES, LLC

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## 10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 337774002

Client: TLG Services, Inc.

Client Sample ID: SU 4.2 #1

Collect Date: October 22, 2013

Matrix: Soil

Receive Date: November 19, 2013

Analyte	Activity	Units	% Abundance
Gamma Spec			
Bi-214	3.59E-01	pCi/g	003.477
Cs-137	4.07E+00	pCi/g	039.354
Co-57	7.50E-02	pCi/g	000.726
Co-60	1.09E-01	pCi/g	001.055
Pb-210	2.01E+00	pCi/g	019.440
Pb-212	2.50E-01	pCi/g	002.421
Pb-214	4.17E-01	pCi/g	004.030
K-40	1.61E+00	pCi/g	015.579
Tl-208	1.18E-01	pCi/g	001.137
Th-234	6.60E-01	pCi/g	006.390
U-238	6.60E-01	pCi/g	006.390
Total Activity:	1.03E+01	Total % Abundance:	100.00

# GEL LABORATORIES LLC

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## 10 CFR Part 50/61 Certificate of Analysis

<b>GEL Sample ID:</b>	<b>337774003</b>	<b>Client:</b> TLG Services, Inc.
<b>Client Sample ID:</b>	<b>SU 1.3 #1 (15-30 cm)</b>	<b>Collect Date:</b> August 22, 2013
<b>Matrix:</b>	<b>Misc Solid</b>	<b>Receive Date:</b> November 19, 2013
<b>Geometry Received:</b>		<b>Report Date:</b> December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Gamma Spec							
Be-7	11/20/13	U	-5.14E-01	1.08E+00	1.87E+00		pCi/g
Na-22	11/20/13	U	2.48E-02	5.19E-02	9.77E-02		pCi/g
K-40	11/20/13	3	1.59E+01	1.32E+00	5.62E-01		pCi/g
Cr-51	11/20/13	U	-3.70E-02	2.75E+00	5.02E+00		pCi/g
Mn-54	11/20/13	U	3.85E-03	5.77E-02	9.35E-02		pCi/g
Fe-59	11/20/13	U	-6.82E-02	3.45E-01	6.18E-01		pCi/g
Co-56	11/20/13	U	4.99E-02	9.40E-02	1.75E-01		pCi/g
Co-57	11/20/13	3	1.34E-01	7.42E-02	5.70E-02		pCi/g
Co-58	11/20/13	U	-3.54E-02	1.03E-01	1.79E-01		pCi/g
Co-60	11/20/13	U	4.06E-02	6.49E-02	9.45E-02		pCi/g
Zn-65	11/20/13	U	2.50E-02	1.49E-01	2.35E-01		pCi/g
Y-88	11/20/13	U	7.80E-04	5.12E-02	1.01E-01		pCi/g
Zr-95	11/20/13	U	1.12E-01	1.96E-01	3.68E-01		pCi/g
Nb-94	11/20/13	U	-3.95E-03	4.05E-02	7.28E-02		pCi/g
Nb-95	11/20/13	U	7.89E-02	1.23E-01	2.21E-01		pCi/g
Ru-106	11/20/13	U	-1.84E-01	4.54E-01	8.06E-01		pCi/g
Ag-110m	11/20/13	U	-1.81E-02	7.37E-02	1.29E-01		pCi/g
Sn-113	11/20/13	U	-1.21E-02	8.16E-02	1.46E-01		pCi/g
Sb-124	11/20/13	U	-2.67E-02	2.18E-01	4.07E-01		pCi/g
Sb-125	11/20/13	U	2.16E-02	1.10E-01	1.99E-01		pCi/g
Cs-134	11/20/13	U	5.46E-02	6.42E-02	9.16E-02		pCi/g
Cs-136	11/20/13	U	-6.06E+00	6.34E+00	1.07E+01		pCi/g
Cs-137	11/20/13	U	-8.12E-03	4.46E-02	8.02E-02	1.00E-01	pCi/g
Ba-133	11/20/13	U	-2.59E-02	5.98E-02	9.07E-02		pCi/g
Ba-140	11/20/13	U	-1.30E+01	1.75E+01	3.09E+01		pCi/g
Ce-139	11/20/13	U	-1.59E-02	4.88E-02	8.65E-02		pCi/g
Ce-141	11/20/13	U	6.97E-02	3.39E-01	6.08E-01		pCi/g
Ce-144	11/20/13	U	1.28E-01	2.40E-01	4.47E-01		pCi/g
Nd-147	11/20/13	U	-1.17E+00	7.92E+01	1.40E+02		pCi/g
Pm-144	11/20/13	U	2.25E-02	5.13E-02	9.48E-02		pCi/g
Pm-146	11/20/13	U	9.35E-03	5.14E-02	9.28E-02		pCi/g
Eu-152	11/20/13	3,U	2.31E-01	2.11E-01	2.39E-01		pCi/g
Eu-154	11/20/13	U	5.76E-02	1.43E-01	2.68E-01		pCi/g
Eu-155	11/20/13	U	5.27E-02	1.05E-01	1.91E-01		pCi/g
Ir-192	11/20/13	U	-3.23E-02	7.85E-02	1.41E-01		pCi/g
Hg-203	11/20/13	U	4.87E-03	1.32E-01	2.42E-01		pCi/g

- Note(s):** 1. Calculated MDAs are a-posteriori values at the 95% confidence level.  
2. Activity is reported on a dry weight basis unless otherwise indicated in the case narrative and is decay corrected to the sample collect date.  
3. Results are statistically positive at the 95% confidence level. (activity is greater than or equal to the two sigma uncertainty)

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

**UI** Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES LLC

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

## 10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 337774003 Client: TLG Services, Inc.  
Client Sample ID: SU 1.3 #1 (15-30 cm) Collect Date: August 22, 2013  
Matrix: Misc Solid Receive Date: November 19, 2013  
Geometry Received: Report Date: December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Tl-208	11/20/13	3	2.70E-01	9.24E-02	7.24E-02		pCi/g
Pb-210	11/20/13	3	1.84E+00	9.22E-01	9.09E-01		pCi/g
Pb-212	11/20/13	3	1.15E+00	1.16E-01	1.14E-01		pCi/g
Pb-214	11/20/13	3	6.83E-01	1.71E-01	1.57E-01		pCi/g
Bi-212	11/20/13	UI	0.00E+00	1.02E+00	1.33E+00		pCi/g
Bi-214	11/20/13	3	7.16E-01	1.59E-01	1.61E-01		pCi/g
Ra-228	11/20/13	3	1.21E+00	2.94E-01	3.11E-01		pCi/g
Ac-228	11/20/13	3	1.21E+00	2.94E-01	3.11E-01		pCi/g
Th-234	11/20/13	UI	0.00E+00	1.37E+00	1.14E+00		pCi/g
U-235	11/20/13	U	-1.47E-01	2.15E-01	3.73E-01		pCi/g
U-238	11/20/13	UI	0.00E+00	1.37E+00	1.14E+00		pCi/g
Np-239	11/20/13	U	5.68E-02	4.50E-01	7.31E-01		pCi/g
Am-241	11/20/13	U	4.19E-02	6.80E-02	1.10E-01		pCi/g

Note(s): 1. Calculated MDAs are a-posteriori values at the 95% confidence level.  
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U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES, LLC

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

## 10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 337774003

Client: TLG Services, Inc.

Client Sample ID: SU 1.3 #1 (15–30 cm)

Collect Date: August 22, 2013

Matrix: Misc Solid

Receive Date: November 19, 2013

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac-228	1.21E+00	pCi/g	005.243
Bi-214	7.16E-01	pCi/g	003.095
Co-57	1.34E-01	pCi/g	000.579
Pb-210	1.84E+00	pCi/g	007.963
Pb-212	1.15E+00	pCi/g	004.979
Pb-214	6.83E-01	pCi/g	002.956
K-40	1.59E+01	pCi/g	068.777
Ra-228	1.21E+00	pCi/g	005.243
Tl-208	2.70E-01	pCi/g	001.166
Total Activity:		2.31E+01	Total % Abundance: 100.00

# GEL LABORATORIES LLC

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## 10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 337774004

Client: TLG Services, Inc.

Client Sample ID: SU 1.3 #3 (15-31 cm)

Collect Date: August 22, 2013

Matrix: Misc Solid

Receive Date: November 19, 2013

Geometry Received:

Report Date: December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Gamma Spec							
Be-7	11/20/13	U	-2.32E-01	9.70E-01	1.71E+00		pCi/g
Na-22	11/20/13	U	-1.77E-02	5.22E-02	9.35E-02		pCi/g
K-40	11/20/13	3	1.40E+01	1.42E+00	5.45E-01		pCi/g
Cr-51	11/20/13	UI	0.00E+00	4.48E+00	4.63E+00		pCi/g
Mn-54	11/20/13	U	-3.75E-02	5.00E-02	8.14E-02		pCi/g
Fe-59	11/20/13	U	-3.59E-01	3.72E-01	6.09E-01		pCi/g
Co-56	11/20/13	U	3.72E-02	1.02E-01	1.73E-01		pCi/g
Co-57	11/20/13	3	1.54E-01	6.60E-02	5.29E-02		pCi/g
Co-58	11/20/13	U	4.45E-03	1.11E-01	1.78E-01		pCi/g
Co-60	11/20/13	3,U	7.31E-02	6.61E-02	8.31E-02		pCi/g
Zn-65	11/20/13	3,U	2.12E-01	1.92E-01	2.74E-01		pCi/g
Y-88	11/20/13	U	2.46E-02	5.09E-02	1.22E-01		pCi/g
Zr-95	11/20/13	U	1.89E-01	2.12E-01	4.20E-01		pCi/g
Nb-94	11/20/13	U	1.45E-02	4.36E-02	8.23E-02		pCi/g
Nb-95	11/20/13	U	5.48E-02	1.27E-01	2.15E-01		pCi/g
Ru-106	11/20/13	U	7.90E-02	4.38E-01	8.30E-01		pCi/g
Ag-110m	11/20/13	U	9.33E-02	1.10E-01	1.51E-01		pCi/g
Sn-113	11/20/13	U	3.75E-02	8.47E-02	1.58E-01		pCi/g
Sb-124	11/20/13	U	4.62E-02	2.47E-01	5.06E-01		pCi/g
Sb-125	11/20/13	U	-9.93E-02	1.15E-01	1.91E-01		pCi/g
Cs-134	11/20/13	3,U	7.43E-02	5.22E-02	1.10E-01		pCi/g
Cs-136	11/20/13	U	-4.71E+00	6.71E+00	1.17E+01		pCi/g
Cs-137	11/20/13	U	-1.38E-02	4.17E-02	7.53E-02	1.00E-01	pCi/g
Ba-133	11/20/13	U	8.16E-03	5.36E-02	8.72E-02		pCi/g
Ba-140	11/20/13	U	-6.90E+00	1.99E+01	3.62E+01		pCi/g
Ce-139	11/20/13	U	-2.33E-02	4.47E-02	7.67E-02		pCi/g
Ce-141	11/20/13	U	-1.06E-02	3.59E-01	5.69E-01		pCi/g
Ce-144	11/20/13	U	-2.29E-01	2.81E-01	4.23E-01		pCi/g
Nd-147	11/20/13	U	-8.58E+00	7.40E+01	1.38E+02		pCi/g
Pm-144	11/20/13	U	-4.04E-02	4.61E-02	7.79E-02		pCi/g
Pm-146	11/20/13	UI	0.00E+00	6.11E-02	9.91E-02		pCi/g
Eu-152	11/20/13	UI	0.00E+00	1.63E-01	2.53E-01		pCi/g
Eu-154	11/20/13	U	-9.31E-02	1.48E-01	2.54E-01		pCi/g
Eu-155	11/20/13	U	4.58E-02	9.54E-02	1.78E-01		pCi/g
Ir-192	11/20/13	U	-7.13E-02	8.46E-02	1.24E-01		pCi/g
Hg-203	11/20/13	U	1.59E-01	2.39E-01	2.12E-01		pCi/g

Note(s): 1. Calculated MDAs are a-posteriori values at the 95% confidence level.

2. Activity is reported on a dry weight basis unless otherwise indicated in the case narrative and is decay corrected to the sample collect date.

3. Results are statistically positive at the 95% confidence level. (activity is greater than or equal to the two sigma uncertainty)

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

UI Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES LLC

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

## 10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 337774004 Client: TLG Services, Inc.  
Client Sample ID: SU 1.3 #3 (15-31 cm) Collect Date: August 22, 2013  
Matrix: Misc Solid Receive Date: November 19, 2013  
Geometry Received: Report Date: December 06, 2013

Analyte	Run Date	Qualifier	Activity <sup>2</sup>	2 Sigma Uncertainty	MDA <sup>1</sup>	RL	Units
Tl-208	11/20/13	3	2.57E-01	9.49E-02	7.65E-02		pCi/g
Pb-210	11/20/13	3,U	1.10E+00	9.86E-01	1.14E+00		pCi/g
Pb-212	11/20/13	3	8.97E-01	1.11E-01	1.18E-01		pCi/g
Pb-214	11/20/13	3	6.68E-01	1.64E-01	1.49E-01		pCi/g
Bi-212	11/20/13	3,U	1.10E+00	8.89E-01	1.41E+00		pCi/g
Bi-214	11/20/13	3	5.72E-01	1.51E-01	1.69E-01		pCi/g
Ra-228	11/20/13	3	9.10E-01	3.12E-01	3.08E-01		pCi/g
Ac-228	11/20/13	3	9.10E-01	3.12E-01	3.08E-01		pCi/g
Th-234	11/20/13	3	1.69E+00	1.56E+00	1.32E+00		pCi/g
U-235	11/20/13	U	1.97E-01	3.04E-01	3.58E-01		pCi/g
U-238	11/20/13	3	1.69E+00	1.56E+00	1.32E+00		pCi/g
Np-239	11/20/13	U	-1.06E-01	4.43E-01	7.03E-01		pCi/g
Am-241	11/20/13	U	-1.85E-02	8.50E-02	1.37E-01		pCi/g

Note(s): 1. Calculated MDAs are a-posteriori values at the 95% confidence level.  
2. Activity is reported on a dry weight basis unless otherwise indicated in the case narrative and is decay corrected to the sample collect date.  
3. Results are statistically positive at the 95% confidence level. (activity is greater than or equal to the two sigma uncertainty)

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

UI Gamma Spectroscopy—Uncertain identification

# GEL LABORATORIES, LLC

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

## 10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 337774004

Client: TLG Services, Inc.

Client Sample ID: SU 1.3 #3 (15–31 cm)

Collect Date: August 22, 2013

Matrix: Misc Solid

Receive Date: November 19, 2013

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac-228	9.10E-01	pCi/g	004.191
Bi-214	5.72E-01	pCi/g	002.635
Co-57	1.54E-01	pCi/g	000.711
Pb-212	8.97E-01	pCi/g	004.132
Pb-214	6.68E-01	pCi/g	003.075
K-40	1.40E+01	pCi/g	064.327
Ra-228	9.10E-01	pCi/g	004.191
Tl-208	2.57E-01	pCi/g	001.183
Th-234	1.69E+00	pCi/g	007.777
U-238	1.69E+00	pCi/g	007.777
Total Activity:	2.17E+01	Total % Abundance:	100.00

# QC Summary



# GEL LABORATORIES LLC

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

## QC Summary

Report Date: December 6, 2013

Page 1 of 8

TLG Services, Inc.  
148 New Milford Rd. East  
Bridgewater, Connecticut

Contact: Mr. Jay Adler

Workorder: 337774

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	1347774										
QC1202989167 337774001 DUP											
Actinium-228		0.846		0.836	pCi/g	1.18		(0% - 100%)	MXR1	11/20/13	15:07
	Uncertainty	+/-0.227		+/-0.213							
Americium-241	U	0.0153	U	0.0804	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0419		+/-0.0855							
Antimony-124	U	-0.0304	U	-0.0558	pCi/g	N/A		N/A			
	Uncertainty	+/-0.132		+/-0.157							
Antimony-125	U	-0.0311	U	-0.059	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0704		+/-0.0699							
Barium-133	U	0.00948	U	-0.012	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0365		+/-0.0335							
Barium-140	U	1.43	U	-14.8	pCi/g	N/A		N/A			
	Uncertainty	+/-18.1		+/-16.9							
Beryllium-7	U	0.187	U	-0.313	pCi/g	N/A		N/A			
	Uncertainty	+/-0.832		+/-0.657							
Bismuth-212	UI	0.00	U	0.386	pCi/g	N/A		N/A			
	Uncertainty	+/-0.663		+/-0.578							
Bismuth-214		0.461		0.423	pCi/g	8.78		(0% - 100%)			
	Uncertainty	+/-0.0995		+/-0.103							
Cerium-139	U	-0.0231	U	0.0181	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0332		+/-0.0305							
Cerium-141	U	0.0275	U	0.0821	pCi/g	N/A		N/A			
	Uncertainty	+/-0.265		+/-0.257							
Cerium-144	U	0.170	U	0.00807	pCi/g	N/A		N/A			
	Uncertainty	+/-0.177		+/-0.180							
Cesium-134	U	0.0716	U	0.0408	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0523		+/-0.036							
Cesium-136	U	0.197	U	2.71	pCi/g	N/A		N/A			
	Uncertainty	+/-6.75		+/-6.35							
Cesium-137	U	-0.0193	U	-0.0267	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0322		+/-0.0286							
Chromium-51	U	0.197	U	-1.2	pCi/g	N/A		N/A			
	Uncertainty	+/-2.01		+/-2.16							
Cobalt-56	U	-0.0492	U	0.000757	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0838		+/-0.0608							
Cobalt-57	UI	0.00	U	0.00582	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0424		+/-0.062							
Cobalt-58	U	-0.0695	U	0.00617	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0702		+/-0.0639							
Cobalt-60		0.152		0.111	pCi/g	31.9		(0% - 100%)			
	Uncertainty	+/-0.0443		+/-0.0496							

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## QC Summary

Workorder: 337774

Page 2 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	1347774										
Europium-152		0.266		0.369	pCi/g	32.7		(0% - 100%)	MXR1	11/20/13	15:07
	Uncertainty	+/-0.133		+/-0.119							
Europium-154	U	-0.0369	U	-0.0478	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0987		+/-0.0993							
Europium-155	UI	0.00	U	-0.0335	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0898		+/-0.0828							
Iridium-192	U	-0.0361	U	-0.00185	pCi/g	N/A		N/A			
	Uncertainty	+/-0.051		+/-0.0518							
Iron-59	U	-0.38	U	-0.0641	pCi/g	N/A		N/A			
	Uncertainty	+/-0.279		+/-0.247							
Lead-210		1.23	UI	0.00	pCi/g	114*		(0% - 100%)			
	Uncertainty	+/-0.725		+/-3.19							
Lead-212		0.924		0.918	pCi/g	0.651		(0%-20%)			
	Uncertainty	+/-0.0788		+/-0.0852							
Lead-214		0.641		0.524	pCi/g	20.0		(0%-20%)			
	Uncertainty	+/-0.110		+/-0.110							
Manganese-54	U	0.000906	U	-0.00925	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0361		+/-0.0334							
Mercury-203	U	0.116	U	0.0517	pCi/g	N/A		N/A			
	Uncertainty	+/-0.107		+/-0.151							
Neodymium-147	U	-56.5	U	11.5	pCi/g	N/A		N/A			
	Uncertainty	+/-82.5		+/-73.6							
Neptunium-239	U	-0.0133	U	-0.076	pCi/g	N/A		N/A			
	Uncertainty	+/-0.302		+/-0.318							
Niobium-94	U	0.00819	U	-0.0122	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0288		+/-0.0268							
Niobium-95	U	0.135	U	0.0489	pCi/g	N/A		N/A			
	Uncertainty	+/-0.109		+/-0.0912							
Potassium-40		15.2		13.5	pCi/g	12.1		(0%-20%)			
	Uncertainty	+/-1.16		+/-1.09							
Promethium-144	U	-0.00618	U	-0.000987	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0338		+/-0.0303							
Promethium-146	U	0.00288	U	0.00838	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0338		+/-0.0304							
Radium-228		0.846		0.836	pCi/g	1.18		(0% - 100%)			
	Uncertainty	+/-0.227		+/-0.213							
Ruthenium-106	U	0.115	U	-0.0497	pCi/g	N/A		N/A			
	Uncertainty	+/-0.309		+/-0.260							
Silver-110m	U	-0.0463	U	-0.0326	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0494		+/-0.0507							
Sodium-22	U	-0.014	U	-0.0145	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0363		+/-0.0359							

# GEL LABORATORIES LLC

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## QC Summary

Workorder: 337774

Page 3 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	1347774										
Thallium-208		0.254		0.280	pCi/g	9.68		(0%-20%)			
	Uncertainty	+/-0.0522		+/-0.0531							
Thorium-234		0.771	U	1.24	pCi/g	46.9		(0% - 100%)	MXR1	11/20/13	15:07
	Uncertainty	+/-0.668		+/-1.15							
Tin-113	U	0.00137	U	-0.0323	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0557		+/-0.0555							
Uranium-235	U	-0.0749	U	-0.021	pCi/g	N/A		N/A			
	Uncertainty	+/-0.147		+/-0.146							
Uranium-238		0.771	U	1.24	pCi/g	46.9		(0% - 100%)			
	Uncertainty	+/-0.668		+/-1.15							
Yttrium-88	U	-0.0262	U	0.0029	pCi/g	N/A		N/A			
	Uncertainty	+/-0.0461		+/-0.0384							
Zinc-65	U	-0.295	U	0.106	pCi/g	N/A		N/A			
	Uncertainty	+/-0.149		+/-0.125							
Zirconium-95	U	0.0407	U	-0.0266	pCi/g	N/A		N/A			
	Uncertainty	+/-0.145		+/-0.125							
QC1202989168	LCS										
Actinium-228			U	1.22	pCi/g					11/20/13	15:07
	Uncertainty			+/-2.61							
Americium-241	491			533	pCi/g		108	(75%-125%)			
	Uncertainty			+/-2.76							
Antimony-124			U	-0.0637	pCi/g						
	Uncertainty			+/-0.545							
Antimony-125			U	-0.664	pCi/g						
	Uncertainty			+/-1.28							
Barium-133			U	0.278	pCi/g						
	Uncertainty			+/-0.487							
Barium-140			U	-0.328	pCi/g						
	Uncertainty			+/-1.63							
Beryllium-7				7.69	pCi/g						
	Uncertainty			+/-4.62							
Bismuth-212			U	3.87	pCi/g						
	Uncertainty			+/-7.25							
Bismuth-214			U	-0.0671	pCi/g						
	Uncertainty			+/-0.911							
Cerium-139				2.05	pCi/g						
	Uncertainty			+/-0.347							
Cerium-141			U	-0.225	pCi/g						
	Uncertainty			+/-0.338							
Cerium-144			U	-0.372	pCi/g						
	Uncertainty			+/-1.58							
Cesium-134			U	0.103	pCi/g						
	Uncertainty			+/-0.672							
Cesium-136			U	-0.228	pCi/g						
	Uncertainty										

# GEL LABORATORIES LLC

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## QC Summary

Workorder: 337774

Page 4 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	1347774										
Cesium-137	191			+/-0.963							
	Uncertainty			+/-2.15							
Chromium-51			U	-1.1	pCi/g		101	(75%-125%)	MXR1	11/20/13	15:07
	Uncertainty			+/-2.83							
Cobalt-56			U	0.331	pCi/g						
	Uncertainty			+/-0.655							
Cobalt-57				15.7	pCi/g						
	Uncertainty			+/-0.410							
Cobalt-58			U	-0.573	pCi/g						
	Uncertainty			+/-0.606							
Cobalt-60	234			229	pCi/g		97.8	(75%-125%)			
	Uncertainty			+/-2.71							
Europium-152			U	0.0962	pCi/g						
	Uncertainty			+/-1.12							
Europium-154			U	-0.0973	pCi/g						
	Uncertainty			+/-0.980							
Europium-155			U	-0.781	pCi/g						
	Uncertainty			+/-0.704							
Iridium-192			U	0.0795	pCi/g						
	Uncertainty			+/-0.334							
Iron-59			U	-0.596	pCi/g						
	Uncertainty			+/-1.47							
Lead-210				6360	pCi/g						
	Uncertainty			+/-27.1							
Lead-212			U	-0.098	pCi/g						
	Uncertainty			+/-0.535							
Lead-214			U	-0.247	pCi/g						
	Uncertainty			+/-0.841							
Manganese-54			U	-0.281	pCi/g						
	Uncertainty			+/-0.634							
Mercury-203			U	0.0911	pCi/g						
	Uncertainty			+/-0.313							
Neodymium-147			U	0.0952	pCi/g						
	Uncertainty			+/-3.07							
Neptunium-239			U	1.37	pCi/g						
	Uncertainty			+/-3.26							
Niobium-94			U	-0.0589	pCi/g						
	Uncertainty			+/-0.480							
Niobium-95			U	-0.136	pCi/g						
	Uncertainty			+/-0.547							
Potassium-40			U	1.42	pCi/g						
	Uncertainty			+/-2.42							

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 337774

Page 5 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	1347774										
Promethium-144			U	0.547	pCi/g						
	Uncertainty			+/-0.468							
Promethium-146			U	-0.134	pCi/g				MXR1	11/20/13	15:07
	Uncertainty			+/-0.717							
Radium-228			U	1.22	pCi/g						
	Uncertainty			+/-2.61							
Ruthenium-106			U	-0.128	pCi/g						
	Uncertainty			+/-4.24							
Silver-110m			U	0.210	pCi/g						
	Uncertainty			+/-0.960							
Sodium-22			U	-0.0341	pCi/g						
	Uncertainty			+/-0.343							
Thallium-208			U	0.157	pCi/g						
	Uncertainty			+/-0.473							
Thorium-234			U	-3.89	pCi/g						
	Uncertainty			+/-6.77							
Tin-113				1.33	pCi/g						
	Uncertainty			+/-0.621							
Uranium-235			U	0.393	pCi/g						
	Uncertainty			+/-1.46							
Uranium-238			U	-3.89	pCi/g						
	Uncertainty			+/-6.77							
Yttrium-88				1.43	pCi/g						
	Uncertainty			+/-0.450							
Zinc-65				47.3	pCi/g						
	Uncertainty			+/-2.84							
Zirconium-95			U	-0.122	pCi/g						
	Uncertainty			+/-0.964							
QC1202989166	MB										
Actinium-228			U	0.0521	pCi/g					11/20/13	15:06
	Uncertainty			+/-0.0855							
Americium-241			U	-0.00656	pCi/g						
	Uncertainty			+/-0.0207							
Antimony-124			U	-0.00379	pCi/g						
	Uncertainty			+/-0.0342							
Antimony-125			U	-0.00674	pCi/g						
	Uncertainty			+/-0.043							
Barium-133			U	-0.0108	pCi/g						
	Uncertainty			+/-0.0217							
Barium-140			U	0.0345	pCi/g						
	Uncertainty			+/-0.0577							
Beryllium-7			U	-0.0319	pCi/g						
	Uncertainty			+/-0.113							
Bismuth-212			U	0.230	pCi/g						
	Uncertainty										

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 337774

Page 6 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	1347774										
Bismuth-214	Uncertainty		U	+/-0.197	pCi/g					MXR1	11/20/13 15:06
				-0.00297							
Cerium-139	Uncertainty		U	+/-0.0408	pCi/g						
				0.00413							
Cerium-141	Uncertainty		U	+/-0.0102	pCi/g						
				0.00295							
Cerium-144	Uncertainty		U	+/-0.0182	pCi/g						
				-0.0195							
Cesium-134	Uncertainty		U	+/-0.0676	pCi/g						
				0.00511							
Cesium-136	Uncertainty		U	+/-0.0174	pCi/g						
				0.0187							
Cesium-137	Uncertainty		U	+/-0.0193	pCi/g						
				0.0152							
Chromium-51	Uncertainty		U	+/-0.018	pCi/g						
				0.0113							
Cobalt-56	Uncertainty		U	+/-0.0969	pCi/g						
				0.00757							
Cobalt-57	Uncertainty		U	+/-0.0161	pCi/g						
				-0.000507							
Cobalt-58	Uncertainty		U	+/-0.00866	pCi/g						
				0.00579							
Cobalt-60	Uncertainty		U	+/-0.0145	pCi/g						
				-0.00723							
Europium-152	Uncertainty		U	+/-0.0169	pCi/g						
				-0.00701							
Europium-154	Uncertainty		U	+/-0.0363	pCi/g						
				0.0278							
Europium-155	Uncertainty		U	+/-0.0418	pCi/g						
				0.0202							
Iridium-192	Uncertainty		U	+/-0.0323	pCi/g						
				0.000769							
Iron-59	Uncertainty		U	+/-0.0118	pCi/g						
				0.0153							
Lead-210	Uncertainty		U	+/-0.0272	pCi/g						
				0.0331							
Lead-212	Uncertainty		U	+/-0.331	pCi/g						
				0.00184							
Lead-214	Uncertainty		U	+/-0.0525	pCi/g						
				-0.0285							
Manganese-54	Uncertainty		U	+/-0.0363	pCi/g						
				0.0092							
	Uncertainty			+/-0.0184							

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 337774

Page 7 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	1347774										
Mercury-203			U	0.0106	pCi/g						
	Uncertainty			+/-0.0111							
Neodymium-147			U	-0.0438	pCi/g				MXR1	11/20/13	15:06
	Uncertainty			+/-0.0878							
Neptunium-239			U	0.00967	pCi/g						
	Uncertainty			+/-0.129							
Niobium-94			U	-0.00866	pCi/g						
	Uncertainty			+/-0.0221							
Niobium-95			U	0.00378	pCi/g						
	Uncertainty			+/-0.0158							
Potassium-40			U	0.216	pCi/g						
	Uncertainty			+/-0.186							
Promethium-144			U	0.00989	pCi/g						
	Uncertainty			+/-0.0163							
Promethium-146			U	0.00257	pCi/g						
	Uncertainty			+/-0.0166							
Radium-228			U	0.0521	pCi/g						
	Uncertainty			+/-0.0855							
Ruthenium-106			U	0.0629	pCi/g						
	Uncertainty			+/-0.132							
Silver-110m			U	-0.000438	pCi/g						
	Uncertainty			+/-0.0185							
Sodium-22			U	0.00973	pCi/g						
	Uncertainty			+/-0.0147							
Thallium-208			U	0.00335	pCi/g						
	Uncertainty			+/-0.0193							
Thorium-234			U	0.0597	pCi/g						
	Uncertainty			+/-0.359							
Tin-113			U	-0.00715	pCi/g						
	Uncertainty			+/-0.0177							
Uranium-235			U	-0.0692	pCi/g						
	Uncertainty			+/-0.0808							
Uranium-238			U	0.0597	pCi/g						
	Uncertainty			+/-0.359							
Yttrium-88			U	-0.0163	pCi/g						
	Uncertainty			+/-0.0168							
Zinc-65			U	0.0122	pCi/g						
	Uncertainty			+/-0.0349							
Zirconium-95			U	-0.00233	pCi/g						
	Uncertainty			+/-0.0257							

### Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 337774

Page 8 of 8

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
**	Analyte is a Tracer compound										
<	Result is less than value reported										
>	Result is greater than value reported										
BD	Results are either below the MDC or tracer recovery is low										
FA	Failed analysis.										
H	Analytical holding time was exceeded										
J	Value is estimated										
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.										
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.										
M	M if above MDC and less than LLD										
M	REMP Result > MDC/CL and < RDL										
N/A	RPD or %Recovery limits do not apply.										
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
UJ	Gamma Spectroscopy--Uncertain identification										
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

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

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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



**There are no "Data Exception Reports" associated with this analytical report.**

# **Chain of Custody**





## SAMPLE RECEIPT &amp; REVIEW FORM

Client: <u>TLG</u>		SDG/AR/COC/Work Order: <u>337774</u>	
Received By: <u>MIC</u>		Date Received: <u>11-19-13</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
COC/Samples marked as radioactive?	<input type="checkbox"/> <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>CPMO</u>	
Classified Radioactive II or III by RSO?	<input type="checkbox"/> <input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?	<input type="checkbox"/> <input checked="" type="checkbox"/>		
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input type="checkbox"/> <input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?	<input type="checkbox"/> <input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?	<input type="checkbox"/> <input checked="" type="checkbox"/>		

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice <u>None</u> Other (describe) *all temperatures are recorded in Celsius <u>17C</u>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130462962</u> Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7	Are Encore containers present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sample ID's affected: <u>NO TIME ON CHAIN OR SAMPLES</u>
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12	Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14	Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>7971 8439 7010</u>

Comments (Use Continuation Form if needed):

# **Laboratory Certifications**

**List of current GEL Certifications as of 06 December 2013**

<b>State</b>	<b>Certification</b>
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122013-2
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-13-8
Utah NELAP	SC000122013-11
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790