

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Northwind Solutions
Address : 100 WIPP Road

Lenoir City, Tennessee 37771

Report Date: March 1, 2019

Contact: Guy Hopper

Project: WEAC FDA Project

Client Sample ID: WEAC-SU5.2-209

Project: NORW00118

Sample ID: 471500007

Client ID: NORW002

Matrix: Soil

Collect Date: 02-FEB-19

Receive Date: 11-FEB-19

Collector: Client

Moisture: 23.3%

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, 21 day IG Solid (Standard List) "Dry Weight Corrected"</i>														
Radium-226		0.918	+/-0.151	0.113	+/-0.169	0.300	pCi/g			MXR1	03/01/19	0605	1850374	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/11/19	1328	1850290

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration

Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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 Project: WEAC FDA Project

Report Date: February 18, 2019

Client Sample ID: WEAC-SU5.2-209
 Sample ID: 471019007
 Matrix: Soil
 Collect Date: 02-FEB-19
 Receive Date: 11-FEB-19
 Collector: Client
 Moisture: 23.3%

Project: NORW00118
 Client ID: NORW002

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-228		0.863	+/-0.479	0.476	+/-0.491	1.00	pCi/g			MP2	02/18/19	0922	1848138	1
Thorium-230		0.820	+/-0.468	0.481	+/-0.482	1.00	pCi/g							
Thorium-232		0.740	+/-0.414	0.281	+/-0.424	1.00	pCi/g							
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-233/234		1.55	+/-0.683	0.516	+/-0.719	1.00	pCi/g			MP2	02/14/19	1249	1848141	2
Uranium-235/236	U	0.0652	+/-0.244	0.411	+/-0.245	1.00	pCi/g							
Uranium-238		1.32	+/-0.627	0.457	+/-0.653	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, No IG, Solid (Standard List) "Dry Weight Corrected"</i>														
Cesium-137		0.779	+/-0.0727	0.047	+/-0.0973	1.00	pCi/g			MXR1	02/13/19	1143	1848151	3
Radium-226		0.773	+/-0.126	0.0781	+/-0.142	0.300	pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/11/19	1328	1848134

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	1848138	101	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	1848141	82.4	(15%-125%)

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Contact: Guy Hopper

Project: WEAC FDA Project

Client Sample ID: WEAC-SU5.2-209

Sample ID: 471019007

Project: NORW00118

Client ID: NORW002

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				

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