

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Company : MJW Corporation  
 Address : 15 Hazelwood Drive  
 Suite 112  
 Buffalo, New York 14228

Report Date: January 14, 2016

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

Client Sample ID: 4.1.A.R.1.1  
 Sample ID: 387686016  
 Matrix: Soil  
 Collect Date: 09-DEC-15  
 Receive Date: 17-DEC-15  
 Collector: Client  
 Moisture: 21.9%

Project: MJWC00115  
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lo	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		21.9						percent		CXC1	12/17/15	1415	1532052	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.182	+/-0.324	0.638	0.299	+/-0.335		pCi/g		RXF2	01/11/16	1057	1532065	2
Antimony-125	U	0.0309	+/-0.127	0.240	0.111	+/-0.128		pCi/g						
Bismuth-212	U	0.243	+/-0.826	1.41	0.647	+/-0.834		pCi/g						
Bismuth-214		1.09	+/-0.193	0.158	0.0712	+/-0.217		pCi/g						
Cesium-137		0.386	+/-0.0894	0.0975	0.0444	+/-0.0961	0.100	pCi/g						
Cobalt-60	U	-0.0199	+/-0.0471	0.0872	0.0367	+/-0.048		pCi/g						
Europium-154	U	-0.0218	+/-0.176	0.320	0.141	+/-0.177		pCi/g						
Lead-212		1.21	+/-0.156	0.179	0.0852	+/-0.190		pCi/g						
Lead-214		1.27	+/-0.260	0.420	0.204	+/-0.283		pCi/g						
Potassium-40		16.4	+/-1.87	0.760	0.310	+/-2.33		pCi/g						
Protactinium-231	U	0.438	+/-0.652	1.28	0.602	+/-0.689		pCi/g						
Radium-226		1.09	+/-0.193	0.158	0.0712	+/-0.217		pCi/g						
Radium-228		1.08	+/-0.336	0.305	0.134	+/-0.369		pCi/g						
Thallium-208		0.360	+/-0.0878	0.084	0.038	+/-0.0935		pCi/g						
Tin-126	UI	0.00	+/-0.131	0.201	0.0957	+/-0.133		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		19.8	+/-5.17	3.89	1.48	+/-6.47	4.00	pCi/g		KXB2	01/07/16	1215	1534691	3
Beta		30.5	+/-4.20	3.96	1.82	+/-6.15	10.0	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	12/17/15	1415	1532052

**The following Analytical Methods were performed**

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4.5.2.3/Ga-01-R
3	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 4.I.A.R.1.1  
Sample ID: 387686016

Project: MJWC00115  
Client ID: MJWC001

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

### Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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## Certificate of Analysis

Company : MJW Technical Services  
 Address : 15 Hazelwood Drive  
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 Buffalo, New York 14228

Report Date: March 8, 2016

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

Client Sample ID: 4.1.A.R.1.2  
 Sample ID: 392045005  
 Matrix: Soil  
 Collect Date: 09-DEC-15  
 Receive Date: 25-FEB-16  
 Collector: Client  
 Moisture: 18.5%

Project: MJWC00115  
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.127	+/-0.287	0.565	0.264	+/-0.294		pCi/g		MXR1	03/08/16	0646	1547793	1
Antimony-125	U	0.00487	+/-0.125	0.231	0.107	+/-0.125		pCi/g						
Bismuth-212		0.860	+/-0.934	1.00	0.444	+/-0.938		pCi/g						
Bismuth-214	UI	0.00	+/-0.184	0.372	0.179	+/-0.529		pCi/g						
Cesium-137		0.363	+/-0.125	0.0861	0.0389	+/-0.129	0.100	pCi/g						
Cobalt-60	U	-0.00835	+/-0.0508	0.0959	0.0414	+/-0.0509		pCi/g						
Europium-154	U	0.0909	+/-0.147	0.309	0.137	+/-0.153		pCi/g						
Lead-212		1.41	+/-0.152	0.123	0.0578	+/-0.195		pCi/g						
Lead-214		1.27	+/-0.205	0.388	0.188	+/-0.234		pCi/g						
Potassium-40		16.5	+/-1.75	0.792	0.332	+/-2.25		pCi/g						
Protactinium-231	UI	0.00	+/-0.604	1.24	0.585	+/-0.732		pCi/g						
Radium-226	UI	0.00	+/-0.184	0.372	0.179	+/-0.529		pCi/g						
Radium-228		1.07	+/-0.384	0.378	0.172	+/-0.417		pCi/g						
Thallium-208		0.358	+/-0.104	0.0766	0.0346	+/-0.109		pCi/g						
Tin-126	UI	0.00	+/-0.166	0.171	0.081	+/-0.168		pCi/g						

**Rad Gas Flow Proportional Counting**  
*GFPC, Gross A/B, solid "Dry Weight Corrected"*

Alpha		15.0	+/-3.93	3.99	1.70	+/-4.88	4.00	pCi/g		JXB7	03/03/16	1051	1547854	2
Beta		21.4	+/-2.93	2.62	1.19	+/-4.22	10.0	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	02/26/16	1456	1547784

**The following Analytical Methods were performed**

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	EPA 900.0/SW846.9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 4.1.A.R.1.2  
Sample ID: 392045005

Project: MJWC00115  
Client ID: MJWC001

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

### Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).