

Appendix G-  
Sub-Area 3.1.16- 3.1.18- COA

# 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: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.16.R.1  
Sample ID: 385070007  
Matrix: Soil  
Collect Date: 21-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 18.1%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
ASTM D 2216 % Moisture "As Received"														
Moisture		18.1						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Gamma Spec Analysis</b>														
Gammam spec. Gamma, Solid "Dry Weight Corrected"														
Actinium-227	U	-0.0964	+/-0.260	0.494	0.230	+/-0.264		pCi/g		RXF2	12/03/15	1303	1522383	2
Antimony-125	U	-0.0282	+/-0.112	0.206	0.0948	+/-0.112		pCi/g						
Bismuth-212	UI	0.00	+/-0.914	1.23	0.564	+/-1.00		pCi/g						
Bismuth-214		0.682	+/-0.167	0.139	0.0628	+/-0.177		pCi/g						
Cesium-137		1.75	+/-0.161	0.0756	0.0339	+/-0.215	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0414	0.0968	0.0423	+/-0.0459		pCi/g						
Europium-154	U	-0.0232	+/-0.114	0.191	0.0791	+/-0.114		pCi/g						
Lead-212		0.930	+/-0.129	0.163	0.0778	+/-0.152		pCi/g						
Lead-214		0.944	+/-0.220	0.149	0.0685	+/-0.234		pCi/g						
Potassium-40		11.7	+/-1.55	0.702	0.291	+/-1.84		pCi/g						
Protactinium-231	U	0.306	+/-0.558	1.12	0.525	+/-0.579		pCi/g						
Radium-226		0.682	+/-0.167	0.139	0.0628	+/-0.177		pCi/g						
Radium-228		0.716	+/-0.295	0.279	0.123	+/-0.309		pCi/g						
Thallium-208		0.278	+/-0.0785	0.0696	0.0313	+/-0.0818		pCi/g						
Tin-126	U	0.0837	+/-0.143	0.193	0.0922	+/-0.144		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
GFPC, Gross A/B, solid "Dry Weight Corrected"														
Alpha		14.7	+/-3.55	3.98	1.77	+/-4.64	4.00	pCi/g		KXB2	12/02/15	1116	1525757	3
Beta		21.7	+/-2.59	2.91	1.38	+/-4.02	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	11/10/15	1319	1521842

### 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
---------------------------	------	----------	-----------	-------------------

## GEL LABORATORIES LLC

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

### Certificate of Analysis

Company : MIW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.16.R.1  
Sample ID: 385070007

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).

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.16.R.1  
Sample ID: 385070007  
Matrix: Soil  
Collect Date: 21-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 18.1%

Report Date: December 17, 2015

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		18.1						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0964	+/-0.260	0.494	0.230	+/-0.264		pCi/g		RXF2	12/03/15	1303	1522383	2
Antimony-125	U	-0.0282	+/-0.112	0.206	0.0948	+/-0.112		pCi/g						
Bismuth-212	UI	0.00	+/-0.914	1.23	0.564	+/-1.00		pCi/g						
Bismuth-214		0.682	+/-0.167	0.139	0.0628	+/-0.177		pCi/g						
Cesium-137		1.75	+/-0.161	0.0756	0.0339	+/-0.215	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0414	0.0968	0.0423	+/-0.0459		pCi/g						
Europium-154	U	-0.0232	+/-0.114	0.191	0.0791	+/-0.114		pCi/g						
Lead-212		0.930	+/-0.129	0.163	0.0778	+/-0.152		pCi/g						
Lead-214		0.944	+/-0.220	0.149	0.0685	+/-0.234		pCi/g						
Potassium-40		11.7	+/-1.55	0.702	0.291	+/-1.84		pCi/g						
Protactinium-231	U	0.306	+/-0.558	1.12	0.525	+/-0.579		pCi/g						
Radium-226		0.682	+/-0.167	0.139	0.0628	+/-0.177		pCi/g						
Radium-228		0.716	+/-0.295	0.279	0.123	+/-0.309		pCi/g						
Thallium-208		0.278	+/-0.0785	0.0696	0.0313	+/-0.0818		pCi/g						
Tin-126	U	0.0837	+/-0.143	0.193	0.0922	+/-0.144		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		14.7	+/-3.55	3.98	1.77	+/-4.64	4.00	pCi/g		KXB2	12/02/15	1116	1525757	3
Beta		21.7	+/-2.59	2.91	1.38	+/-4.02	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	11/10/15	1319	1521842

### 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 Q/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
---------------------------	------	----------	-----------	-------------------

## 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.16.R.1  
Sample ID: 385070007

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).

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Company : MJW Technical Services  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: February 10, 2016

Client Sample ID: 3.1.16.R.2  
Sample ID: 389296012  
Matrix: Soil  
Collect Date: 21-OCT-15  
Receive Date: 14-JAN-16  
Collector: Client  
Moisture: 16.6%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPC	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		16.6						percent		CXC1	01/14/16	1208	1537312	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.186	+/-0.317	0.567	0.266	+/-0.329		pCi/g		RXF2	02/05/16	0843	1537546	2
Antimony-125	UI	0.00	+/-0.128	0.256	0.120	+/-0.139		pCi/g						
Bismuth-212	UI	0.00	+/-0.641	1.11	0.501	+/-0.717		pCi/g						
Bismuth-214		0.635	+/-0.180	0.146	0.0663	+/-0.188		pCi/g						
Cesium-137		2.48	+/-0.176	0.074	0.0331	+/-0.278	0.100	pCi/g						
Cobalt-60	U	-0.0267	+/-0.0439	0.0788	0.0331	+/-0.0456		pCi/g						
Europium-154	U	-0.0256	+/-0.136	0.226	0.096	+/-0.137		pCi/g						
Lead-212		0.704	+/-0.128	0.132	0.0626	+/-0.140		pCi/g						
Lead-214		1.07	+/-0.214	0.340	0.164	+/-0.232		pCi/g						
Potassium-40		12.1	+/-1.57	0.510	0.193	+/-1.88		pCi/g						
Protactinium-231	U	0.349	+/-0.571	1.13	0.530	+/-0.597		pCi/g						
Radium-226		0.635	+/-0.180	0.146	0.0663	+/-0.188		pCi/g						
Radium-228		0.663	+/-0.302	0.242	0.104	+/-0.317		pCi/g						
Thallium-208		0.248	+/-0.0756	0.0777	0.0353	+/-0.0787		pCi/g						
Tin-126	U	0.0248	+/-0.173	0.170	0.0809	+/-0.174		pCi/g						
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0361	+/-0.247	0.449	0.213	+/-0.247		pCi/g		RXF2	01/18/16	1123	1537545	3
Antimony-125	U	-0.081	+/-0.107	0.186	0.0877	+/-0.113		pCi/g						
Bismuth-212	UI	0.00	+/-0.503	0.988	0.463	+/-0.947		pCi/g						
Bismuth-214		0.475	+/-0.125	0.117	0.0546	+/-0.131		pCi/g						
Cesium-137		2.41	+/-0.138	0.063	0.0292	+/-0.239	0.100	pCi/g						
Cobalt-60	U	0.0219	+/-0.0352	0.0715	0.0323	+/-0.0366		pCi/g						
Europium-154	U	-0.0751	+/-0.105	0.181	0.0812	+/-0.110		pCi/g						
Lead-212		0.829	+/-0.108	0.0995	0.0472	+/-0.127		pCi/g						
Lead-214		0.684	+/-0.134	0.122	0.057	+/-0.145		pCi/g						
Potassium-40		12.5	+/-1.26	0.452	0.192	+/-1.66		pCi/g						
Protactinium-231	U	-0.189	+/-0.462	0.816	0.385	+/-0.472		pCi/g						
Radium-226		0.475	+/-0.125	0.117	0.0546	+/-0.131		pCi/g						
Radium-228		0.842	+/-0.214	0.215	0.0977	+/-0.253		pCi/g						
Thallium-208		0.220	+/-0.0636	0.0533	0.0245	+/-0.0662		pCi/g						
Tin-126	UI	0.00	+/-0.145	0.140	0.0667	+/-0.145		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		8.99	+/-3.55	3.91	1.56	+/-3.95	4.00	pCi/g		KXB2	01/26/16	1152	1539462	4
Beta		17.0	+/-2.71	2.56	1.17	+/-3.73	10.0	pCi/g						

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Company : MJW Technical Services  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.16.R.2  
Sample ID: 389296012

Report Date: February 10, 2016

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	-------------	-----	----	-----	----	-------	----	---------	------	------	-------	------

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	01/14/16	1208	1537312

### 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	DOE HASL 300, 4.5 2 3/Ga-01-R
4	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
---------------------------	------	----------	-----------	-------------------

### Notes:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

Company : MJW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.16.R.6  
Sample ID: 385070008  
Matrix: Water  
Collect Date: 21-OCT-15 14:15  
Receive Date: 05-NOV-15  
Collector: Client

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Liquid (Standard List) "As Received"												
Actinium-227	U	23.6	+/-29.6	55.3		pCi/L		MJH1	11/17/15	0657	1521915	1
Antimony-125	U	-8.67	+/-11.0	18.0		pCi/L						
Cesium-137	U	0.378	+/-4.01	7.52	10.0	pCi/L						
Cobalt-60	U	0.318	+/-4.94	9.52		pCi/L						
Europium-154	U	1.81	+/-12.7	25.0		pCi/L						
Protactinium-231	U	24.2	+/-51.3	94.5		pCi/L						
Radium-228	U	-22.7	+/-22.3	28.6		pCi/L						
Tin-126	U	-6.8	+/-14.4	16.0		pCi/L						

### Rad Gas Flow Proportional Counting

#### GFPC, Gross A/B, liquid "As Received"

Alpha	U	-0.489	+/-1.76	3.75	5.00	pCi/L	JXB7	12/02/15	1303	1525771	2
Beta	U	-2.58	+/-2.47	4.94	5.00	pCi/L					

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901.1	
2	EPA 900.0/SW846 9310	

### Notes:

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



# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.16.R.6  
Sample ID: 385070008  
Matrix: Water  
Collect Date: 21-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client

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>GammaSpec, Gamma, Liquid (Standard List) "As Received"</i>														
Actinium-227	U	23.6	+/-29.6	55.3	26.2	+/-31.7		pCi/L		MJH1	11/17/15	0657	1521915	1
Antimony-125	U	-8.67	+/-11.0	18.0	8.36	+/-11.7		pCi/L						
Bismuth-212	U	31.4	+/-54.8	108	49.3	+/-56.7		pCi/L						
Bismuth-214	U	-12.8	+/-10.9	16.5	7.68	+/-12.4		pCi/L						
Cesium-137	U	0.378	+/-4.01	7.52	3.44	+/-4.01	10.0	pCi/L						
Cobalt-60	U	0.318	+/-4.94	9.52	4.26	+/-4.94		pCi/L						
Europium-154	U	1.81	+/-12.7	25.0	11.1	+/-12.7		pCi/L						
Lead-212	UI	0.00	+/-10.9	12.5	5.95	+/-11.0		pCi/L						
Lead-214	U	-1.37	+/-11.5	16.9	7.96	+/-11.5		pCi/L						
Potassium-40	U	-27.9	+/-56.9	101	45.7	+/-58.3		pCi/L						
Protactinium-231	U	24.2	+/-51.3	94.5	44.5	+/-52.7		pCi/L						
Radium-228	U	-22.7	+/-22.3	28.6	12.9	+/-24.7		pCi/L						
Thallium-208	UI	0.00	+/-5.92	6.62	3.02	+/-6.01		pCi/L						
Tin-126	U	-6.8	+/-14.4	16.0	7.66	+/-14.8		pCi/L						

### Rad Gas Flow Proportional Counting

*GFPC, Gross A-B, Liquid "As Received"*

Alpha	U	-0.489	+/-1.76	3.75	1.56	+/-1.76	5.00	pCi/L		JXB7	12/02/15	1303	1525771	2
Beta	U	-2.58	+/-2.47	4.94	2.27	+/-2.47	5.00	pCi/L						

### The following Analytical Methods were performed

Method	Description
1	EPA 901.1
2	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery Test

Batch ID Recovery% Acceptable Limits

### Notes:

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

# 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: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Project: MJWC00115  
Client ID: MJWC001

Client Sample ID: 3.1.16.R.6  
Sample ID: 385070008  
Matrix: Water  
Collect Date: 21-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>														
<i>GammaSpec, Gamma, Liquid (Standard List) "As Received"</i>														
Actinium-227	U	23.6	+/-29.6	55.3	26.2	+/-31.7		pCi/L		MJH1	11/17/15	0637	1521915	1
Antimony-125	U	-8.67	+/-11.0	18.0	8.36	+/-11.7		pCi/L						
Bismuth-212	U	31.4	+/-54.8	108	49.3	+/-56.7		pCi/L						
Bismuth-214	U	-12.8	+/-10.9	16.5	7.68	+/-12.4		pCi/L						
Cesium-137	U	0.378	+/-4.01	7.52	3.44	+/-4.01	10.0	pCi/L						
Cobalt-60	U	0.318	+/-4.94	9.52	4.26	+/-4.94		pCi/L						
Europium-154	U	1.81	+/-12.7	25.0	11.1	+/-12.7		pCi/L						
Lead-212	UL	0.00	+/-10.9	12.5	5.95	+/-11.0		pCi/L						
Lead-214	U	-1.37	+/-11.5	16.9	7.96	+/-11.5		pCi/L						
Potassium-40	U	-27.9	+/-56.9	101	45.7	+/-58.3		pCi/L						
Protactinium-231	U	24.2	+/-51.3	94.5	44.5	+/-52.7		pCi/L						
Radium-228	U	-22.7	+/-22.3	28.6	12.9	+/-24.7		pCi/L						
Thallium-208	UL	0.00	+/-5.92	6.62	3.02	+/-6.01		pCi/L						
Tin-126	U	-6.8	+/-14.4	16.0	7.66	+/-14.8		pCi/L						

### Rad Gas Flow Proportional Counting

*GFPC, Gross A-B, liquid "As Received"*

Alpha	U	-0.489	+/-1.76	3.75	1.56	+/-1.76	5.00	pCi/L		JXB7	12/02/15	1303	1525771	2
Beta	U	-2.58	+/-2.47	4.94	2.27	+/-2.47	5.00	pCi/L						

### The following Analytical Methods were performed

Method	Description
1	EPA 901 I
2	EPA 900 (SW846 9310)

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
---------------------------	------	----------	-----------	-------------------

### Notes:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.1  
Sample ID: 385070009  
Matrix: Soil  
Collect Date: 20-OCT-15 10:40  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 21%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		21.0				percent		CXC1	11/10/15	1319	1521842	1
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0672	+/-0.346	0.631		pCi/g		RXF2	12/03/15	1303	1522383	2
Antimony-125	U	0.0605	+/-0.157	0.272		pCi/g						
Cesium-137		0.935	+/-0.133	0.0906	0.100	pCi/g						
Cobalt-60	U	-2.82E-05	+/-0.0516	0.103		pCi/g						
Europium-154	U	-0.112	+/-0.235	0.336		pCi/g						
Protactinium-231	U	0.403	+/-0.712	1.23		pCi/g						
Radium-226		1.05	+/-0.197	0.163		pCi/g						
Radium-228		1.04	+/-0.329	0.324		pCi/g						
Tin-126	U	0.0481	+/-0.154	0.220		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		11.8	+/-2.94	3.46	4.00	pCi/g		KXB2	12/02/15	1128	1525757	3
Beta		24.4	+/-2.64	3.11	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	11/10/15	1319	1521842

The following Analytical Methods were performed:

Method	Description	Analyst Comments
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	

### Notes:

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

# 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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.1  
Sample ID: 385070009  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 21%

Report Date: December 17, 2015

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
ASTM D 2216 % Moisture "As Received"														
Moisture		21.0						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Gamma Spec Analysis</b>														
GammaSpec, Gamma, Solid "Dry Weight Corrected"														
Actinium-227	U	-0.0672	+/-0.346	0.631	0.295	+/-0.348		pCi/g		RXF2	12/03/15	1303	1522383	2
Antimony-125	U	0.0605	+/-0.157	0.272	0.126	+/-0.160		pCi/g						
Bismuth-212	UI	0.00	+/-0.727	1.58	0.729	+/-0.921		pCi/g						
Bismuth-214		1.05	+/-0.197	0.163	0.0738	+/-0.218		pCi/g						
Cesium-137		0.935	+/-0.133	0.0906	0.0408	+/-0.157	0.100	pCi/g						
Cobalt-60	U	-2.82E-05	+/-0.0516	0.103	0.0443	+/-0.0516		pCi/g						
Europium-154	U	-0.112	+/-0.235	0.336	0.149	+/-0.240		pCi/g						
Lead-212		1.04	+/-0.154	0.142	0.0666	+/-0.181		pCi/g						
Lead-214		1.19	+/-0.231	0.406	0.196	+/-0.254		pCi/g						
Potassium-40		13.0	+/-1.65	0.902	0.380	+/-1.98		pCi/g						
Protactinium-231	U	0.403	+/-0.712	1.23	0.571	+/-0.741		pCi/g						
Radium-226		1.05	+/-0.197	0.163	0.0738	+/-0.218		pCi/g						
Radium-228		1.04	+/-0.329	0.324	0.143	+/-0.366		pCi/g						
Thallium-208		0.426	+/-0.0914	0.0781	0.035	+/-0.099		pCi/g						
Tin-126	U	0.0481	+/-0.154	0.220	0.106	+/-0.155		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
GFPC, Gross A/B, solid "Dry Weight Corrected"														
Alpha		11.8	+/-2.94	3.46	1.56	+/-3.80	4.00	pCi/g		KXB2	12/02/15	1128	1525757	3
Beta		24.4	+/-2.64	3.11	1.50	+/-4.35	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	11/10/15	1319	1521842

### 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

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.1  
Sample ID: 385070009

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	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).

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.1  
Sample ID: 385070009  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 21%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		21.0						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma. Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0672	+/-0.346	0.631	0.295	+/-0.348		pCi/g		RXF2	12/03/15	1303	1522383	2
Antimony-125	U	0.0605	+/-0.157	0.272	0.126	+/-0.160		pCi/g						
Bismuth-212	UI	0.00	+/-0.727	1.58	0.729	+/-0.921		pCi/g						
Bismuth-214		1.05	+/-0.197	0.163	0.0738	+/-0.218		pCi/g						
Cesium-137		0.935	+/-0.133	0.0906	0.0408	+/-0.157	0.100	pCi/g						
Cobalt-60	U	-2.82E-05	+/-0.0516	0.103	0.0443	+/-0.0516		pCi/g						
Europium-154	U	-0.112	+/-0.235	0.336	0.149	+/-0.240		pCi/g						
Lead-212		1.04	+/-0.154	0.142	0.0666	+/-0.181		pCi/g						
Lead-214		1.19	+/-0.231	0.406	0.196	+/-0.254		pCi/g						
Potassium-40		13.0	+/-1.65	0.902	0.380	+/-1.98		pCi/g						
Protactinium-231	U	0.403	+/-0.712	1.23	0.571	+/-0.741		pCi/g						
Radium-226		1.05	+/-0.197	0.163	0.0738	+/-0.218		pCi/g						
Radium-228		1.04	+/-0.329	0.324	0.143	+/-0.366		pCi/g						
Thallium-208		0.426	+/-0.0914	0.0781	0.035	+/-0.099		pCi/g						
Tm-126	U	0.0481	+/-0.154	0.220	0.106	+/-0.155		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		11.8	+/-2.94	3.46	1.56	+/-3.80	4.00	pCi/g		KXB2	12/02/15	1128	1525757	3
Beta		24.4	+/-2.64	3.11	1.50	+/-4.35	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	11/10/15	1319	1521842

### 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

## 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.1  
Sample ID: 385070009

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).

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: January 20, 2016

Client Sample ID: 3.1.17.R.2  
Sample ID: 388092017  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 23-DEC-15  
Collector: Client  
Moisture: 20.6%

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>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0259	+/-0.347	0.613	0.290	+/-0.348		pCi/g		MJH1	01/18/16	0723	1534020	1
Antimony-125	U	0.0466	+/-0.127	0.246	0.115	+/-0.129		pCi/g						
Bismuth-212	UI	0.00	+/-1.12	1.27	0.583	+/-1.18		pCi/g						
Bismuth-214		0.814	+/-0.200	0.162	0.0742	+/-0.211		pCi/g						
Cesium-137		0.742	+/-0.107	0.0879	0.0402	+/-0.122	0.100	pCi/g						
Cobalt-60	U	-0.00171	+/-0.0366	0.072	0.0302	+/-0.0366		pCi/g						
Europium-154	U	0.122	+/-0.136	0.293	0.131	+/-0.148		pCi/g						
Lead-212		1.04	+/-0.132	0.130	0.0616	+/-0.157		pCi/g						
Lead-214		1.05	+/-0.215	0.176	0.0823	+/-0.232		pCi/g						
Potassium-40		14.0	+/-1.68	0.570	0.228	+/-2.06		pCi/g						
Protactinium-231	UI	0.00	+/-1.66	1.08	0.507	+/-1.70		pCi/g						
Radium-226		0.814	+/-0.200	0.162	0.0742	+/-0.211		pCi/g						
Radium-228		1.12	+/-0.309	0.293	0.131	+/-0.344		pCi/g						
Thallium-208		0.293	+/-0.095	0.0779	0.0356	+/-0.098		pCi/g						
Tin-126	UI	0.00	+/-0.139	0.165	0.079	+/-0.140		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	LYT1	12/24/15	0703	1533924

### 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
---------------------------	------	----------	-----------	-------------------



## 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: January 20, 2016

Client Sample ID: 3.1.17.R.2  
Sample ID: 388092017

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mid.
Surrogate/Tracer Recovery	Test													

Batch ID Recovery% Acceptable Limits

#### Notes:

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

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: January 20, 2016

Client Sample ID: 3.1.17.R.2  
Sample ID: 388092007  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 23-DEC-15  
Collector: Client  
Moisture: 20.6%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		20.6						percent		LYT1	12/24/15	0703	1533555	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.0518	+/-0.0673	0.0957	0.0274	+/-0.0677	1.00	pCi/g		MXS2	01/12/16	1021	1534070	2
Plutonium-239/240		0.031	+/-0.0549	0.0832	0.0212	+/-0.055	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.0392	+/-0.0409	0.142	0.0464	+/-0.041	1.00	pCi/g		MXS2	01/12/16	1015	1534063	3
Uranium-233/234		0.759	+/-0.245	0.128	0.0349	+/-0.280	1.00	pCi/g						
Uranium-235/236		0.0296	+/-0.0681	0.108	0.0247	+/-0.0683	1.00	pCi/g						
Uranium-238		0.841	+/-0.256	0.119	0.0302	+/-0.297	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	0.0424	+/-0.274	0.560	0.167	+/-0.274	1.00	pCi/g		MXS2	01/12/16	1032	1534069	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.26	+/-0.642	0.449	0.109	+/-0.698	1.00	pCi/g		MXS2	01/12/16	1031	1534062	5
Thorium-229	U	-0.0682	+/-0.158	0.468	0.128	+/-0.159	1.00	pCi/g						
Thorium-230		1.03	+/-0.559	0.393	0.090	+/-0.600	1.00	pCi/g						
Thorium-232		0.848	+/-0.501	0.212	0.00	+/-0.532	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	0.0173	+/-0.0477	0.0827	0.0211	+/-0.0478	1.00	pCi/g		MXS2	01/12/16	1103	1534067	6
Curium-242		0.00	+/-0.0385	0.0573	0.00	+/-0.0386	1.00	pCi/g						
Curium-243/244		0.0205	+/-0.047	0.0745	0.0171	+/-0.0471	1.00	pCi/g						
Curium-245/246		0.0155	+/-0.0436	0.0465	0.00	+/-0.0436	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-6.03	+/-7.26	12.9	6.26	+/-7.26	15.0	pCi/g		MXS2	01/14/16	1749	1534073	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	0.0568	+/-0.400	1.06	0.360	+/-0.401	1.00	pCi/g		MJH1	01/15/16	0849	1535059	8
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0339	+/-0.182	0.336	0.160	+/-0.182		pCi/g		MJH1	12/29/15	1156	1533562	9
Antimony-125	U	0.0422	+/-0.0675	0.129	0.0606	+/-0.0702		pCi/g						
Bismuth-212	U	0.00	+/-0.624	0.832	0.392	+/-0.972		pCi/g						
Bismuth-214		0.746	+/-0.123	0.0981	0.046	+/-0.138		pCi/g						
Cesium-137		0.773	+/-0.0773	0.045	0.0207	+/-0.0999	0.100	pCi/g						
Cobalt-60	U	-0.000218	+/-0.0238	0.0461	0.0202	+/-0.0238		pCi/g						
Europium-154	U	-0.0157	+/-0.0955	0.172	0.0782	+/-0.0957		pCi/g						
Lead-212		1.05	+/-0.0862	0.0739	0.0353	+/-0.127		pCi/g						
Lead-214		0.841	+/-0.122	0.0942	0.0445	+/-0.142		pCi/g						

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Company : MIJW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.17.R.2  
Sample ID: 388092007

Report Date: January 20, 2016

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RI	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		12.5	+/-1.09	0.475	0.209	+/-1.55		pCi/g						
Protactinium-231	U	0.00	+/-0.411	0.710	0.340	+/-0.449		pCi/g						
Radium-226		0.746	+/-0.123	0.0981	0.046	+/-0.138		pCi/g						
Radium-228		0.965	+/-0.179	0.182	0.0832	+/-0.232		pCi/g						
Thallium-208		0.330	+/-0.0473	0.0465	0.0217	+/-0.0547		pCi/g						
Tin-126	U	0.00	+/-0.0766	0.086	0.0413	+/-0.0791		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		10.2	+/-3.81	3.82	1.48	+/-4.30	4.00	pCi/g		JXB7	01/12/16	0819	1534760	10
Beta		17.9	+/-3.27	2.92	1.28	+/-4.08	10.0	pCi/g						
<i>GFPC, Sr-90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.298	+/-0.841	1.70	0.745	+/-0.841	2.00	pCi/g		KSD1	01/06/16	1654	1534788	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	1.27	+/-2.46	4.19	2.02	+/-2.46	6.00	pCi/g		TXJ1	01/10/16	2115	1534918	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.182	+/-0.783	1.34	0.660	+/-0.783	2.00	pCi/g		TXJ1	01/16/16	1233	1534935	13
<i>Liquid Scint Tc-99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.241	+/-1.64	2.84	1.36	+/-1.64	5.00	pCi/g		MYM	01/19/16	0642	1534638	14

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/24/15	0703	1533555

### The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300, I-01 Modified
9	DOE HASL 300, 4 5 2 3/Ga-01-R
10	EPA 900 0/SW846 9310/SM 7110B Modified
11	EPA 905 0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906.0 Modified
13	EPA EERFC-01 Modified

# 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 20, 2016

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.2  
Sample ID: 388092007

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
14	DOE EML HASL-300, Tc-02-RC Modified													

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1534070	75.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	65.4	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	86.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1534069	93	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1534062	85.1	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1534067	91.4	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1534073	75.4	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534788	60	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534638	95.9	(15%-125%)

### Notes:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010  
Matrix: Soil  
Collect Date: 20-OCT-15 10:45  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 21%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		21.0				percent		CXC1	11/10/15	1319	1521842	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	0.0726	+/-0.0919	0.114	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	0.0437	+/-0.105	0.190	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	0.0135	+/-0.0953	0.196	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.05	+/-0.329	0.143	1.00	pci/g						
Uranium-235/236	U	0.0456	+/-0.0897	0.124	1.00	pci/g						
Uranium-238		0.956	+/-0.312	0.0775	1.00	pci/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	-0.0887	+/-0.206	0.609	1.00	pCi/g		HAKB	11/23/15	1706	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		1.05	+/-0.517	0.501	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0144	+/-0.151	0.314	1.00	pCi/g						
Thorium-230		0.924	+/-0.439	0.154	1.00	pCi/g						
Thorium-232		1.33	+/-0.522	0.154	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241	U	-0.0175	+/-0.0406	0.120	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242	U	0.00	+/-0.0421	0.0627	1.00	pCi/g						
Curium-243/244	U	0.0144	+/-0.0647	0.126	1.00	pCi/g						
Curium-245/246	U	0.0417	+/-0.0715	0.0626	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	-3.38	+/-6.49	11.4	15.0	pCi/g		HAKB	11/25/15	0930	1522578	7
Rad Gamma Spec Analysis												
Gamma I129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.067	+/-0.270	0.491	1.00	pCi/g		MJH1	12/02/15	1342	1522374	8
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0434	+/-0.269	0.489		pCi/g		RXF2	12/03/15	1304	1522383	9
Antimony-125	U	-0.0629	+/-0.110	0.199		pCi/g						
Cesium-137		1.00	+/-0.114	0.0654	0.100	pCi/g						
Cobalt-60	U	0.00885	+/-0.0356	0.0759		pCi/g						
Europium-154	U	-0.0489	+/-0.137	0.255		pCi/g						
Protactinium-231	UI	0.00	+/-0.773	0.968		pCi/g						

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 558-8171 - www.gel.com

## Certificate of Analysis

Report Date: December 4, 2015

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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.5

Sample ID: 385070010

Project: MJWC00115

Client ID: MJWC001

### Rad Gamma Spec Analysis

#### Gammascpec, Gamma, Solid "Dry Weight Corrected"

Radium-226	0.800	+/-0.174	0.126	pCi/g
Radium-228	0.968	+/-0.302	0.294	pCi/g
Tin-126	0.00	+/-0.134	0.137	pCi/g

### Rad Gas Flow Proportional Counting

#### GFPC, Gross A/B, solid "Dry Weight Corrected"

Alpha	15.2	+/-2.84	2.57	4.00	pCi/g	KXB2	12/02/15	1128	1525757	10
Beta	25.2	+/-2.55	2.84	10.0	pCi/g					

#### GFPC, Sr90, solid "Dry Weight Corrected"

Strontium-90	U	-0.358	+/-0.742	1.53	2.00	pCi/g	KSDI	12/02/15	1641	1525755	11
--------------	---	--------	----------	------	------	-------	------	----------	------	---------	----

### Rad Liquid Scintillation Analysis

#### LSC, Tritium Dist. Solid "Dry Weight Corrected"

Tritium	U	1.90	+/-1.91	3.14	6.00	pCi/g	TXJ1	12/02/15	1324	1522724	12
---------	---	------	---------	------	------	-------	------	----------	------	---------	----

#### Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	0.232	+/-0.868	1.48	2.00	pCi/g	TXJ1	12/03/15	1940	1522716	13
-----------	---	-------	----------	------	------	-------	------	----------	------	---------	----

#### Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	1.12	+/-1.58	2.67	5.00	pCi/g	MYM1	11/29/15	1017	1522715	14
---------------	---	------	---------	------	------	-------	------	----------	------	---------	----

### The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1319	1521842

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

Company : MJW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010

Project: MJWC00115  
Client ID: MJWC001

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	ASTM D 2216 (Modified)	
2	DOE EML HASL-300, Pu-11-RC Modified	
3	DOE EML HASL-300, U-02-RC Modified	
4	ASTM C 1476-00 Modified	
5	DOE EML HASL-300, Th-01-RC Modified	
6	DOE EML HASL-300, Am-05-RC Modified	
7	DOE EML HASL-300, Pu-11-RC Modified	
8	DOE EML HASL-300, I-01 Modified	
9	DOE HASL, 300, 4 5.2.3/Ga-01-R	
10	EPA 900 0/SW846 9310/SM 7110B Modified	
11	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified	
12	EPA 906.0 Modified	
13	EPA EERF C-01 Modified	
14	DOE EML HASL-300, Te-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"			72.9	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			57.5	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			63.8	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			70.5	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			88.9	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			68.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			72.9	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			86.7	(25%-125%)
Technetium-99m Tracer	Liquid Scint Te99, Solid "Dry Weight Corrected"			94.2	(15%-125%)

### Notes:

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

# 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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 21%

Report Date: December 17, 2015

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		21.0						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.0726	+/-0.0919	0.114	0.0262	+/-0.0926	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	0.0437	+/-0.105	0.190	0.0641	+/-0.105	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0135	+/-0.0953	0.196	0.0641	+/-0.0954	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.05	+/-0.329	0.143	0.0328	+/-0.400	1.00	pci/g						
Uranium-235/236		0.0456	+/-0.0897	0.124	0.0233	+/-0.0902	1.00	pci/g						
Uranium-238		0.956	+/-0.312	0.0775	0.00	+/-0.375	1.00	pci/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0887	+/-0.206	0.609	0.166	+/-0.206	1.00	pCi/g		HAKB	11/23/15	1706	1522576	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.05	+/-0.517	0.501	0.171	+/-0.542	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0144	+/-0.151	0.314	0.080	+/-0.151	1.00	pCi/g						
Thorium-230		0.924	+/-0.439	0.154	0.00	+/-0.461	1.00	pCi/g						
Thorium-232		1.33	+/-0.522	0.154	0.00	+/-0.560	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.0175	+/-0.0406	0.120	0.0327	+/-0.0407	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242		0.00	+/-0.0421	0.0627	0.00	+/-0.0422	1.00	pCi/g						
Curium-243/244	U	0.0144	+/-0.0647	0.126	0.0362	+/-0.0647	1.00	pCi/g						
Curium-245/246		0.0417	+/-0.0715	0.0626	0.00	+/-0.0718	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-3.38	+/-6.49	11.4	5.53	+/-6.49	15.0	pCi/g		HAKB	11/25/15	0930	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.067	+/-0.270	0.491	0.210	+/-0.272	1.00	pCi/g		MJH1	12/02/15	1342	1522374	8
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0434	+/-0.269	0.489	0.228	+/-0.270		pCi/g		RXF2	12/03/15	1304	1522383	9
Antimony-125	U	-0.0629	+/-0.110	0.199	0.0916	+/-0.114		pCi/g						
Bismuth-212	UI	0.00	+/-1.09	0.860	0.379	+/-1.09		pCi/g						
Bismuth-214		0.800	+/-0.174	0.126	0.0564	+/-0.186		pCi/g						
Cesium-137		1.00	+/-0.114	0.0654	0.029	+/-0.141	0.100	pCi/g						
Cobalt-60	U	0.00885	+/-0.0356	0.0759	0.0322	+/-0.0358		pCi/g						
Europium-154	U	-0.0489	+/-0.137	0.255	0.112	+/-0.139		pCi/g						
Lead-212		1.10	+/-0.133	0.105	0.049	+/-0.164		pCi/g						
Lead-214		1.04	+/-0.183	0.341	0.165	+/-0.204		pCi/g						



# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010

Report Date: December 17, 2015

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		13.9	+/-1.52	0.732	0.308	+/-1.93		pCi/g						
Protactinium-231	UI	0.00	+/-0.773	0.968	0.451	+/-0.806		pCi/g						
Radium-226		0.800	+/-0.174	0.126	0.0564	+/-0.186		pCi/g						
Radium-228		0.968	+/-0.302	0.294	0.131	+/-0.334		pCi/g						
Thallium-208		0.352	+/-0.073	0.0627	0.028	+/-0.0787		pCi/g						
Tin-126	UI	0.00	+/-0.134	0.137	0.0645	+/-0.136		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		15.2	+/-2.84	2.57	1.13	+/-4.12	4.00	pCi/g		KXB2	12/02/15	1128	1525757	10
Beta		25.2	+/-2.55	2.84	1.36	+/-4.38	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.358	+/-0.742	1.53	0.670	+/-0.742	2.00	pCi/g		KSD1	12/02/15	1641	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium		1.90	+/-1.91	3.14	1.37	+/-1.91	6.00	pCi/g		TXJ1	12/02/15	1324	1522724	12
<i>Liquid Scim C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	0.232	+/-0.868	1.48	0.725	+/-0.868	2.00	pCi/g		TXJ1	12/03/15	1940	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	1.12	+/-1.58	2.67	1.28	+/-1.58	5.00	pCi/g		MYM	11/29/15	1017	1522715	14

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1319	1521842

### The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300, I-01 Modified
9	DOE HASL 300, 4.5.2.3/Ga-01-R
10	EPA 900.0/SW846 9310/SM 7110B Modified
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906.0 Modified
13	EPA EERFC-01 Modified

# 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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010

Report Date: December 17, 2015

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
14	DOE EML HASL-300, Te-02-RC Modified													

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	72.9	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	57.5	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	63.8	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	70.5	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1522579	88.9	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	68.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	72.9	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	86.7	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	94.2	(15%-125%)

### Notes:

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

# 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

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 21%

Report Date: December 17, 2015

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		21.0						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.0726	+/-0.0919	0.114	0.0262	+/-0.0926	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	0.0437	+/-0.105	0.190	0.0641	+/-0.105	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0135	+/-0.0953	0.196	0.0641	+/-0.0954	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.05	+/-0.329	0.143	0.0328	+/-0.400	1.00	pci/g						
Uranium-235/236		0.0456	+/-0.0897	0.124	0.0233	+/-0.0902	1.00	pci/g						
Uranium-238		0.956	+/-0.312	0.0775	0.00	+/-0.375	1.00	pci/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0887	+/-0.206	0.609	0.166	+/-0.206	1.00	pCi/g		HAKB	11/23/15	1706	1522576	4
<i>Alphaspec Th229 - 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.05	+/-0.517	0.501	0.171	+/-0.542	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0144	+/-0.151	0.314	0.080	+/-0.151	1.00	pCi/g						
Thorium-230		0.924	+/-0.439	0.154	0.00	+/-0.461	1.00	pCi/g						
Thorium-232		1.33	+/-0.522	0.154	0.00	+/-0.560	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.0175	+/-0.0406	0.120	0.0327	+/-0.0407	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242		0.00	+/-0.0421	0.0627	0.00	+/-0.0422	1.00	pCi/g						
Curium-243/244	U	0.0144	+/-0.0647	0.126	0.0362	+/-0.0647	1.00	pCi/g						
Curium-245/246		0.0417	+/-0.0715	0.0626	0.00	+/-0.0718	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-3.38	+/-6.49	11.4	5.53	+/-6.49	15.0	pCi/g		HAKB	11/25/15	0930	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.067	+/-0.270	0.491	0.210	+/-0.272	1.00	pCi/g		MJH1	12/02/15	1342	1522374	8
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0434	+/-0.269	0.489	0.228	+/-0.270		pCi/g		RXF2	12/03/15	1304	1522383	9
Antimony-125	U	-0.0629	+/-0.110	0.199	0.0916	+/-0.114		pCi/g						
Bismuth-212	UI	0.00	+/-1.09	0.860	0.379	+/-1.09		pCi/g						
Bismuth-214		0.800	+/-0.174	0.126	0.0564	+/-0.186		pCi/g						
Cesium-137		1.00	+/-0.114	0.0654	0.029	+/-0.141	0.100	pCi/g						
Cobalt-60	U	0.00885	+/-0.0356	0.0759	0.0322	+/-0.0358		pCi/g						
Europium-154	U	-0.0489	+/-0.137	0.255	0.112	+/-0.139		pCi/g						
Lead-212		1.10	+/-0.133	0.105	0.049	+/-0.164		pCi/g						
Lead-214		1.04	+/-0.183	0.341	0.165	+/-0.204		pCi/g						

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010

Report Date: December 17, 2015

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>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		13.9	+/-1.52	0.732	0.308	+/-1.93		pCi/g						
Protactinium-231	UI	0.00	+/-0.773	0.968	0.451	+/-0.806		pCi/g						
Radium-226		0.800	+/-0.174	0.126	0.0564	+/-0.186		pCi/g						
Radium-228		0.968	+/-0.302	0.294	0.131	+/-0.334		pCi/g						
Thallium-208		0.352	+/-0.073	0.0627	0.028	+/-0.0787		pCi/g						
Tin-126	UI	0.00	+/-0.134	0.137	0.0645	+/-0.136		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		15.2	+/-2.84	2.57	1.13	+/-4.12	4.00	pCi/g		KXB2	12/02/15	1128	1525757	10
Beta		25.2	+/-2.55	2.84	1.36	+/-4.38	10.0	pCi/g						
<i>GFPC, Sr-90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.358	+/-0.742	1.53	0.670	+/-0.742	2.00	pCi/g		KSD1	12/02/15	1641	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium		1.90	+/-1.91	3.14	1.37	+/-1.91	6.00	pCi/g		TXJ1	12/02/15	1324	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	0.232	+/-0.868	1.48	0.725	+/-0.868	2.00	pCi/g		TXJ1	12/03/15	1940	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	1.12	+/-1.58	2.67	1.28	+/-1.58	5.00	pCi/g		MYM	11/29/15	1017	1522715	14

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1319	1521842

### The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300, I-01 Modified
9	DOE HASL 300, 4.5.2.3/Ga-01-R
10	EPA 900.0/SW846 9310/SM 7110B Modified
11	EPA 905.0 Modified/DOE RP501 Rev. 1 Modified
12	EPA 906.0 Modified
13	EPA EERF C-01 Modified

# 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: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.5  
Sample ID: 385070010

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
14	DOE EML HASI-300, Tc-02-RC Modified													

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	72.9	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	57.5	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	63.8	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	70.5	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228.230,232 Solid "Dry Weight Corrected"	1522579	88.9	(15%-125%)
Americium-243 Tracer	Am241. Cm Solid "Dry Weight Corrected"	1522571	68.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241. Solid "Dry Weight Corrected"	1522578	72.9	(15%-125%)
Strontium Carrier	GFPC. Sr90, solid "Dry Weight Corrected"	1525755	86.7	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99. Solid "Dry Weight Corrected"	1522715	94.2	(15%-125%)

### Notes:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

Company : MJW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011  
Matrix: Soil  
Collect Date: 20-OCT-15 10:55  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 20.5%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		20.5				percent		CXC1	11/10/15	1319	1521842	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	-0.00502	+/-0.0433	0.100	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	-0.0301	+/-0.0486	0.155	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	0.0643	+/-0.0953	0.139	1.00	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.20	+/-0.361	0.131	1.00	pCi/g						
Uranium-235/236		0.110	+/-0.121	0.0824	1.00	pCi/g						
Uranium-238		0.767	+/-0.289	0.0822	1.00	pCi/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	-0.181	+/-0.189	0.656	1.00	pCi/g		HAKB	11/23/15	1707	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		1.41	+/-0.530	0.336	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.0111	+/-0.0957	0.222	1.00	pCi/g						
Thorium-230		0.773	+/-0.385	0.221	1.00	pCi/g						
Thorium-232		1.08	+/-0.452	0.255	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241	U	-0.00355	+/-0.0306	0.0708	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242	U	0.00	+/-0.0341	0.0508	1.00	pCi/g						
Curium-243/244	U	0.000584	+/-0.0433	0.0963	1.00	pCi/g						
Curium-245/246	X	0.186	+/-0.115	0.0507	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	-3.4	+/-7.08	12.4	15.0	pCi/g		HAKB	11/25/15	1031	1522578	7
Rad Gamma Spec Analysis												
Gamma 1129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.0593	+/-0.280	0.554	1.00	pCi/g		MJH1	12/02/15	1343	1522374	8
Gamma spec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0212	+/-0.279	0.529		pCi/g		RXF2	12/03/15	1304	1522383	9
Antimony-125	U	-0.00335	+/-0.116	0.187		pCi/g						
Cesium-137		0.661	+/-0.111	0.0858	0.100	pCi/g						
Cobalt-60	U	-0.015	+/-0.0369	0.0681		pCi/g						
Europium-154	U	-0.0303	+/-0.122	0.229		pCi/g						
Protactinium-231	U	0.806	+/-0.524	1.09		pCi/g						

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

Company : MfW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.6

Sample ID: 385070011

Project: MJWC00115

Client ID: MJWC001

### Rad Gamma Spec Analysis

#### Gammascpec, Gamma, Solid "Dry Weight Corrected"

Radium-226		0.634	+/-0.133	0.118	pCi/g
Radium-228	UI	0.00	+/-0.275	0.550	pCi/g
Tin-126	U	0.114	+/-0.130	0.159	pCi/g

#### Rad Gas Flow Proportional Counting

##### GFPC, Gross A/B, solid "Dry Weight Corrected"

Alpha	12.0	+/-3.12	3.98	4.00	pCi/g	KXB2	12/02/15	1128	1525757	10
Beta	22.6	+/-2.41	2.84	10.0	pCi/g					

##### GFPC, Sr90, solid "Dry Weight Corrected"

Strontium-90	U	-0.244	+/-0.623	1.31	2.00	pCi/g	KSD1	12/02/15	1655	1525755	11
--------------	---	--------	----------	------	------	-------	------	----------	------	---------	----

#### Rad Liquid Scintillation Analysis

##### LSC, Tritium Dist, Solid "Dry Weight Corrected"

Tritium	U	-0.0268	+/-1.65	3.19	6.00	pCi/g	TXJ1	12/02/15	1411	1522724	12
---------	---	---------	---------	------	------	-------	------	----------	------	---------	----

##### Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.435	+/-0.836	1.45	2.00	pCi/g	TXJ1	12/03/15	2053	1522716	13
-----------	---	--------	----------	------	------	-------	------	----------	------	---------	----

##### Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	1.73	+/-1.69	2.82	5.00	pCi/g	MYM1	11/29/15	1044	1522715	14
---------------	---	------	---------	------	------	-------	------	----------	------	---------	----

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1319	1521842

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

Company : MJW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.17.R.6

Sample ID: 385070011

Project: MJWC00115

Client ID: MJWC001

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	ASTM D 2216 (Modified)	
2	DOE EML HASL-300, Pu-11-RC Modified	
3	DOE EML HASL-300, U-02-RC Modified	
4	ASTM C 1476-00 Modified	
5	DOE EML HASL-300, Th-01-RC Modified	
6	DOE EML HASL-300, Am-05-RC Modified	
7	DOE EML HASL-300, Pu-11-RC Modified	
8	DOE EML HASL-300, I-01 Modified	
9	DOE HASL 300, 4.5.2.3/Ga-01-R	
10	EPA 900.0/SW846 9310/SM 7110B Modified	
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified	
12	EPA 906.0 Modified	
13	EPA EERF C-01 Modified	
14	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"			67.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			52.9	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			67.3	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			91.8	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			98.9	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			76.9	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			67.4	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			88.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"			95.6	(15%-125%)

### Notes:

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



# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 20.5%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		20.5						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	-0.00502	+/-0.0433	0.100	0.0188	+/-0.0435	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	-0.0301	+/-0.0486	0.155	0.0946	+/-0.0487	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232		0.0643	+/-0.0953	0.139	0.038	+/-0.0964	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.20	+/-0.361	0.131	0.0246	+/-0.446	1.00	pci/g						
Uranium-235/236		0.110	+/-0.121	0.0824	0.00	+/-0.123	1.00	pci/g						
Uranium-238		0.767	+/-0.289	0.0822	0.00	+/-0.335	1.00	pci/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.181	+/-0.189	0.656	0.215	+/-0.190	1.00	pCi/g		HAKB	11/23/15	1707	1522576	4
<i>Alphaspec Th229 ~ 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.41	+/-0.530	0.336	0.0964	+/-0.569	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.0111	+/-0.0957	0.222	0.0415	+/-0.0959	1.00	pCi/g						
Thorium-230		0.773	+/-0.385	0.221	0.0414	+/-0.400	1.00	pCi/g						
Thorium-232		1.08	+/-0.452	0.255	0.0584	+/-0.478	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.00355	+/-0.0306	0.0708	0.0133	+/-0.0306	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242		0.00	+/-0.0341	0.0508	0.00	+/-0.0342	1.00	pCi/g						
Curium-243/244	U	0.000584	+/-0.0433	0.0963	0.0262	+/-0.0434	1.00	pCi/g						
Curium-245/246	X	0.186	+/-0.115	0.0507	0.00	+/-0.118	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-3.4	+/-7.08	12.4	6.03	+/-7.08	15.0	pCi/g		HAKB	11/25/15	1031	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.0593	+/-0.280	0.554	0.215	+/-0.281	1.00	pCi/g		MJH1	12/02/15	1343	1522374	8
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0212	+/-0.279	0.529	0.248	+/-0.279		pCi/g		RXF2	12/03/15	1304	1522383	9
Antimony-125	U	-0.00335	+/-0.116	0.187	0.0861	+/-0.116		pCi/g						
Bismuth-212	UI	0.00	+/-0.669	1.30	0.601	+/-0.908		pCi/g						
Bismuth-214		0.634	+/-0.133	0.118	0.053	+/-0.143		pCi/g						
Cesium-137		0.661	+/-0.111	0.0838	0.0394	+/-0.123	0.100	pCi/g						
Cobalt-60	U	-0.015	+/-0.0369	0.0681	0.0285	+/-0.0375		pCi/g						
Europium-154	U	-0.0303	+/-0.122	0.229	0.0993	+/-0.123		pCi/g						
Lead-212		1.13	+/-0.130	0.112	0.0526	+/-0.161		pCi/g						
Lead-214		1.05	+/-0.194	0.342	0.166	+/-0.212		pCi/g						

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011

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>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		13.6	+/-1.48	0.719	0.305	+/-1.89		pCi/g						
Protactinium-231	UI	0.00	+/-0.524	1.09	0.513	+/-0.663		pCi/g						
Radium-226		0.634	+/-0.133	0.118	0.053	+/-0.143		pCi/g						
Radium-228	UI	0.00	+/-0.275	0.550	0.260	+/-0.451		pCi/g						
Thallium-208		0.258	+/-0.0808	0.0782	0.0359	+/-0.0835		pCi/g						
Tin-126	UI	0.00	+/-0.130	0.159	0.076	+/-0.131		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		12.0	+/-3.12	3.98	1.83	+/-3.91	4.00	pCi/g		KXB2	12/02/15	1128	1525757	10
Beta		22.6	+/-2.41	2.84	1.37	+/-3.97	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.244	+/-0.623	1.31	0.562	+/-0.623	2.00	pCi/g		KSD1	12/02/15	1655	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	-0.0268	+/-1.65	3.19	1.39	+/-1.65	6.00	pCi/g		TXJ1	12/02/15	1411	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.435	+/-0.836	1.45	0.710	+/-0.836	2.00	pCi/g		TXJ1	12/03/15	2053	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99		1.73	+/-1.69	2.82	1.36	+/-1.70	5.00	pCi/g		MYM	11/29/15	1044	1522715	14

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1319	1521842

### The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300, I-01 Modified
9	DOE HASL 300, 4 5.2.3/Ga-01-R
10	EPA 900.0/SW846 9310/SM 7110B Modified
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906.0 Modified
13	EPA EERF C-01 Modified

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
14	DOE EML HASL-300, Te-02-RC Modified													

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	67.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	52.9	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	67.3	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	91.8	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228.230,232 Solid "Dry Weight Corrected"	1522579	98.9	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	76.9	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	67.4	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	88.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	95.6	(15%-125%)

### Notes:

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

# 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  
Contact: Ms. Laurie Loscy  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 20.5%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		20.5						percent		CXCI	11/10/15	1319	1521842	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	-0.00502	+/-0.0433	0.100	0.0188	+/-0.0435	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	-0.0301	+/-0.0486	0.155	0.046	+/-0.0487	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232		0.0643	+/-0.0953	0.139	0.038	+/-0.0964	1.00	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.20	+/-0.361	0.131	0.0246	+/-0.446	1.00	pCi/g						
Uranium-235/236		0.110	+/-0.121	0.0824	0.00	+/-0.123	1.00	pCi/g						
Uranium-238		0.767	+/-0.289	0.0822	0.00	+/-0.335	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.181	+/-0.189	0.656	0.215	+/-0.190	1.00	pCi/g		HAKB	11/23/15	1707	1522576	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.41	+/-0.530	0.336	0.0964	+/-0.569	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.0111	+/-0.0957	0.222	0.0415	+/-0.0959	1.00	pCi/g						
Thorium-230		0.773	+/-0.385	0.221	0.0414	+/-0.400	1.00	pCi/g						
Thorium-232		1.08	+/-0.452	0.255	0.0584	+/-0.478	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.00355	+/-0.0306	0.0708	0.0133	+/-0.0306	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242		0.00	+/-0.0341	0.0508	0.00	+/-0.0342	1.00	pCi/g						
Curium-243/244	U	0.000584	+/-0.0433	0.0963	0.0262	+/-0.0434	1.00	pCi/g						
Curium-245/246	X	0.186	+/-0.115	0.0507	0.00	+/-0.118	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-3.4	+/-7.08	12.4	6.03	+/-7.08	15.0	pCi/g		HAKB	11/25/15	1031	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.0593	+/-0.280	0.554	0.215	+/-0.281	1.00	pCi/g		MJHI	12/02/15	1343	1522374	8
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0212	+/-0.279	0.529	0.248	+/-0.279		pCi/g		RXF2	12/03/15	1304	1522383	9
Antimony-125	U	-0.00335	+/-0.116	0.187	0.0861	+/-0.116		pCi/g						
Bismuth-212	UI	0.00	+/-0.669	1.30	0.601	+/-0.908		pCi/g						
Bismuth-214		0.634	+/-0.133	0.118	0.053	+/-0.143		pCi/g						
Cesium-137		0.661	+/-0.111	0.0858	0.0394	+/-0.123	0.100	pCi/g						
Cobalt-60	U	-0.015	+/-0.0369	0.0681	0.0285	+/-0.0375		pCi/g						
Europium-154	U	-0.0303	+/-0.122	0.229	0.0993	+/-0.123		pCi/g						
Lead-212		1.13	+/-0.130	0.112	0.0526	+/-0.161		pCi/g						
Lead-214		1.05	+/-0.194	0.342	0.166	+/-0.212		pCi/g						

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011

Report Date: December 17, 2015

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>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		13.6	+/-1.48	0.719	0.305	+/-1.89		pCi/g						
Protactinium-231	UI	0.00	+/-0.524	1.09	0.513	+/-0.663		pCi/g						
Radium-226		0.634	+/-0.133	0.118	0.053	+/-0.143		pCi/g						
Radium-228	UI	0.00	+/-0.275	0.550	0.260	+/-0.451		pCi/g						
Thallium-208		0.258	+/-0.0808	0.0782	0.0359	+/-0.0835		pCi/g						
Tin-126	UI	0.00	+/-0.130	0.159	0.076	+/-0.131		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		12.0	+/-3.12	3.98	1.83	+/-3.91	4.00	pCi/g		KXB2	12/02/15	1128	1525757	10
Beta		22.6	+/-2.41	2.84	1.37	+/-3.97	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.244	+/-0.623	1.31	0.562	+/-0.623	2.00	pCi/g		KSD1	12/02/15	1655	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	-0.0268	+/-1.65	3.19	1.39	+/-1.65	6.00	pCi/g		TXJ1	12/02/15	1411	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.435	+/-0.836	1.45	0.710	+/-0.836	2.00	pCi/g		TXJ1	12/03/15	2053	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99		1.73	+/-1.69	2.82	1.36	+/-1.70	5.00	pCi/g		MYM	11/29/15	1044	1522715	14

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1319	1521842

### The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300, I-01 Modified
9	DOE HASL 300, 4.5.2.3/Ga-01-R
10	EPA 900.0/SW846 9310/SM 7110B Modified
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906.0 Modified
13	EPA EERF C-01 Modified

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.17.R.6  
Sample ID: 385070011

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	-------------	-----	----	-----	----	-------	----	---------	------	------	-------	------

14 DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	67.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	52.9	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	67.3	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	91.8	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228.230.232 Solid "Dry Weight Corrected"	1522579	98.9	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	76.9	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	67.4	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	88.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	95.6	(15%-125%)

### Notes:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: December 4, 2015

Company : MJW Corporation  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.18.R.1  
Sample ID: 385070012  
Matrix: Soil  
Collect Date: 20-OCT-15 11:20  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 19.8%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		19.8				percent		CXC1	11/10/15	1319	1521842	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.103	+/-0.301	0.588		pCi/g		RXF2	12/03/15	1305	1522383	2
Antimony-125	U	0.00129	+/-0.121	0.227		pCi/g						
Cesium-137		1.12	+/-0.127	0.0633	0.100	pCi/g						
Cobalt-60	U	0.0364	+/-0.0372	0.0807		pCi/g						
Europium-154	U	0.00261	+/-0.116	0.229		pCi/g						
Protactinium-231	U	0.367	+/-0.587	1.11		pCi/g						
Radium-226		0.866	+/-0.181	0.167		pCi/g						
Radium-228		1.04	+/-0.279	0.306		pCi/g						
Tin-126	U	0.224	+/-0.244	0.251		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		7.56	+/-2.42	3.21	4.00	pCi/g		KXB2	12/02/15	1128	1525757	3
Beta		23.5	+/-2.39	2.63	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	11/10/15	1319	1521842

### The following Analytical Methods were performed:

Method	Description	Analyst	Comments
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		

### Notes:

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

# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.18.R.1  
Sample ID: 385070012  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 19.8%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		19.8						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.103	+/-0.301	0.588	0.277	+/-0.305		pCi/g		RXF2	12/03/15	1305	1522383	2
Antimony-125	U	0.00129	+/-0.121	0.227	0.105	+/-0.121		pCi/g						
Bismuth-212	UI	0.00	+/-0.661	1.33	0.615	+/-0.852		pCi/g						
Bismuth-214		0.866	+/-0.181	0.167	0.0765	+/-0.195		pCi/g						
Cesium-137		1.12	+/-0.127	0.0633	0.0278	+/-0.157	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0372	0.0807	0.0346	+/-0.0408		pCi/g						
Europium-154	U	0.00261	+/-0.116	0.229	0.0989	+/-0.116		pCi/g						
Lead-212		0.773	+/-0.156	0.173	0.0832	+/-0.168		pCi/g						
Lead-214		0.978	+/-0.184	0.332	0.160	+/-0.199		pCi/g						
Potassium-40		11.8	+/-1.49	0.717	0.301	+/-1.82		pCi/g						
Protactinium-231	U	0.367	+/-0.587	1.11	0.521	+/-0.615		pCi/g						
Radium-226		0.866	+/-0.181	0.167	0.0765	+/-0.195		pCi/g						
Radium-228		1.04	+/-0.279	0.306	0.137	+/-0.309		pCi/g						
Thallium-208		0.291	+/-0.107	0.065	0.029	+/-0.110		pCi/g						
Tin-126	UI	0.00	+/-0.244	0.251	0.121	+/-0.245		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		7.56	+/-2.42	3.21	1.46	+/-2.84	4.00	pCi/g		KXB2	12/02/15	1128	1525757	3
Beta		23.5	+/-2.39	2.63	1.26	+/-4.04	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	11/10/15	1319	1521842

### 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
---------------------------	------	----------	-----------	-------------------



# 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.I.18.R.1  
Sample ID: 385070012

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test													

### Notes:

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

# 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: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 3.1.18.R.1  
Sample ID: 385070012  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 19.8%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		19.8						percent		CXC1	11/10/15	1319	1521842	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.103	+/-0.301	0.588	0.277	+/-0.305		pCi/g		RX12	12/03/15	1305	1522383	2
Antimony-125	U	0.00129	+/-0.121	0.227	0.105	+/-0.121		pCi/g						
Bismuth-212	UI	0.00	+/-0.661	1.33	0.615	+/-0.852		pCi/g						
Bismuth-214		0.866	+/-0.181	0.167	0.0765	+/-0.195		pCi/g						
Cesium-137		1.12	+/-0.127	0.0633	0.0278	+/-0.157	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0372	0.0807	0.0346	+/-0.0408		pCi/g						
Europium-154	U	0.00261	+/-0.116	0.229	0.0989	+/-0.116		pCi/g						
Lead-212		0.773	+/-0.156	0.173	0.0832	+/-0.168		pCi/g						
Lead-214		0.978	+/-0.184	0.332	0.160	+/-0.199		pCi/g						
Potassium-40		11.8	+/-1.49	0.717	0.301	+/-1.82		pCi/g						
Protactinium-231	U	0.367	+/-0.587	1.11	0.521	+/-0.615		pCi/g						
Radium-226		0.866	+/-0.181	0.167	0.0765	+/-0.195		pCi/g						
Radium-228		1.04	+/-0.279	0.306	0.137	+/-0.309		pCi/g						
Thallium-208		0.291	+/-0.107	0.065	0.029	+/-0.110		pCi/g						
Tin-126	UI	0.00	+/-0.244	0.251	0.121	+/-0.245		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		7.56	+/-2.42	3.21	1.46	+/-2.84	4.00	pCi/g		KXB2	12/02/15	1128	1525757	3
Beta		23.5	+/-2.39	2.63	1.26	+/-4.04	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	11/10/15	1319	1521842

### 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
---------------------------	------	----------	-----------	-------------------

## 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  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.18.R.1  
Sample ID: 385070012

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lo	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test													

#### Notes:

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

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Company : MJW Technical Services  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: February 10, 2016

Client Sample ID: 3.1.18.R.2  
Sample ID: 389296013  
Matrix: Soil  
Collect Date: 20-OCT-15  
Receive Date: 14-JAN-16  
Collector: Client  
Moisture: 13.6%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		13.6						percent		CXC1	01/14/16	1208	1537312	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	UI	0.00	+/-0.314	0.634	0.298	+/-0.346		pCi/g		RXF2	02/05/16	0843	1537546	2
Antimony-125	U	-0.0409	+/-0.135	0.240	0.110	+/-0.136		pCi/g						
Bismuth-212	UI	0.00	+/-0.807	1.43	0.659	+/-0.987		pCi/g						
Bismuth-214		0.799	+/-0.183	0.165	0.0752	+/-0.196		pCi/g						
Cesium-137		1.83	+/-0.160	0.0837	0.0376	+/-0.228	0.100	pCi/g						
Cobalt-60	U	0.019	+/-0.0421	0.0844	0.0354	+/-0.043		pCi/g						
Europium-154	U	-0.0126	+/-0.129	0.250	0.106	+/-0.129		pCi/g						
Lead-212		0.985	+/-0.135	0.123	0.0577	+/-0.160		pCi/g						
Lead-214		0.923	+/-0.230	0.187	0.0871	+/-0.244		pCi/g						
Potassium-40		11.1	+/-1.54	0.661	0.264	+/-1.81		pCi/g						
Protactinium-231	UI	0.00	+/-0.924	1.23	0.577	+/-0.934		pCi/g						
Radium-226		0.799	+/-0.183	0.165	0.0752	+/-0.196		pCi/g						
Radium-228		1.05	+/-0.301	0.340	0.152	+/-0.341		pCi/g						
Thallium-208		0.333	+/-0.0799	0.0783	0.0353	+/-0.0853		pCi/g						
Tin-126	U	0.0199	+/-0.195	0.193	0.0923	+/-0.195		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.253	+/-0.334	0.569	0.267	+/-0.355		pCi/g		RXF2	01/18/16	1123	1537545	3
Antimony-125	U	0.0375	+/-0.134	0.257	0.120	+/-0.136		pCi/g						
Bismuth-212	UI	0.00	+/-0.710	1.09	0.492	+/-0.712		pCi/g						
Bismuth-214		0.704	+/-0.181	0.163	0.0746	+/-0.190		pCi/g						
Cesium-137		1.89	+/-0.172	0.0808	0.0365	+/-0.230	0.100	pCi/g						
Cobalt-60	U	-0.0257	+/-0.0502	0.0877	0.0378	+/-0.0516		pCi/g						
Europium-154	U	0.0103	+/-0.140	0.270	0.118	+/-0.140		pCi/g						
Lead-212		0.948	+/-0.133	0.133	0.0628	+/-0.154		pCi/g						
Lead-214		0.685	+/-0.205	0.186	0.0869	+/-0.212		pCi/g						
Potassium-40		12.1	+/-1.42	0.593	0.237	+/-1.75		pCi/g						
Protactinium-231	U	0.385	+/-0.787	1.29	0.609	+/-0.811		pCi/g						
Radium-226		0.704	+/-0.181	0.163	0.0746	+/-0.190		pCi/g						
Radium-228		1.16	+/-0.349	0.304	0.136	+/-0.383		pCi/g						
Thallium-208		0.248	+/-0.0833	0.088	0.0405	+/-0.0857		pCi/g						
Tin-126	UI	0.00	+/-0.139	0.192	0.0922	+/-0.159		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		11.5	+/-3.28	3.91	1.73	+/-3.95	4.00	pCi/g		KXB2	01/26/16	1153	1539462	4
Beta		17.3	+/-2.52	2.77	1.30	+/-3.54	10.0	pCi/g						

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Company : MJW Technical Services  
Address : 15 Hazelwood Drive  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 3.1.18.R.2  
Sample ID: 389296013

Report Date: February 10, 2016

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	-------------	-----	----	-----	----	-------	----	---------	------	------	-------	------

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	01/14/16	1208	1537312

### 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	DOE HASL 300, 4.5 2 3/Ga-01-R
4	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
---------------------------	------	----------	-----------	-------------------

### Notes:

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