

Appendix G-  
Sub-Area 2.1- COA

# 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: 2.1.1.R.1

Project: MJWC00115

Sample ID: 385101010

Client ID: MJWC001

Matrix: Soil

Collect Date: 23-OCT-15 13:20

Receive Date: 05-NOV-15

Collector: Client

Moisture: 39.2%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		39.2				percent		LYTI	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.215	+/-0.482	0.811		pCi/g		RXF2	12/03/15	0829	1522386	2
Antimony-125	U	0.028	+/-0.202	0.314		pCi/g						
Cesium-137		0.412	+/-0.161	0.123	0.100	pCi/g						
Cobalt-60	U	-0.00499	+/-0.0647	0.127		pCi/g						
Europium-154	U	-0.12	+/-0.203	0.354		pCi/g						
Protactinium-231	U	0.695	+/-0.928	1.68		pCi/g						
Radium-226		0.954	+/-0.275	0.189		pCi/g						
Radium-228		1.34	+/-0.513	0.391		pCi/g						
Tin-126	U	0.115	+/-0.148	0.298		pCi/g						

### Rad Gas Flow Proportional Counting

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

Alpha	10.5	+/-3.46	3.88	4.00	pCi/g	JXB7	12/02/15	1425	1525768	3
Beta	15.1	+/-2.51	2.48	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	LYTI	11/10/15	0955	1521927

#### 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).

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## 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: 2.L.I.R.5  
Sample ID: 385101011  
Matrix: Soil  
Collect Date: 23-OCT-15 13:25  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 38%

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		38.0				percent		LY11	11/10/15	0955	1521927	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	-0.00704	+/-0.0486	0.118	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240	U	0.00959	+/-0.0674	0.139	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	0.0807	+/-0.102	0.157	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.14	+/-0.379	0.191	1.00	pci/g						
Uranium-235/236		0.181	+/-0.164	0.151	1.00	pci/g						
Uranium-238		0.932	+/-0.342	0.150	1.00	pci/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	-0.0704	+/-0.163	0.483	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		1.13	+/-0.529	0.459	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0807	+/-0.185	0.294	1.00	pCi/g						
Thorium-230		0.386	+/-0.315	0.324	1.00	pCi/g						
Thorium-232		1.25	+/-0.519	0.253	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241	U	0.00	+/-0.0354	0.0527	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242	U	0.00	+/-0.0401	0.0596	1.00	pCi/g						
Curium-243/244	U	0.0174	+/-0.0488	0.0521	1.00	pCi/g						
Curium-245/246	U	0.0354	+/-0.0695	0.0964	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	-4.74	+/-5.44	9.65	15.0	pCi/g		HAKB	11/25/15	1941	1522578	7
Rad Gamma Spec Analysis												
Gamma I129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.0436	+/-0.248	0.475	1.00	pCi/g		MJH1	12/02/15	1806	1522374	8
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0642	+/-0.373	0.675		pCi/g		RXF2	12/03/15	0829	1522386	9
Antimony-125	U	0.0506	+/-0.145	0.272		pCi/g						
Cesium-137		0.547	+/-0.125	0.105	0.100	pCi/g						
Cobalt-60	U	0.00102	+/-0.0394	0.0847		pCi/g						
Europium-154	U	-0.13	+/-0.176	0.304		pCi/g						
Protactinium-231	U	0.928	+/-0.752	1.35		pCi/g						

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Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 2.1.1.R.1  
Sample ID: 385101010  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 39.2%

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		39.2						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.215	+/-0.482	0.811	0.377	+/-0.493		pCi/g		RXF2	12/03/15	0829	1522386	2
Antimony-125	U	0.028	+/-0.202	0.314	0.144	+/-0.202		pCi/g						
Bismuth-212	U	0.00	+/-0.921	1.95	0.889	+/-1.04		pCi/g						
Bismuth-214		0.954	+/-0.275	0.189	0.0836	+/-0.288		pCi/g						
Cesium-137		0.412	+/-0.161	0.123	0.055	+/-0.165	0.100	pCi/g						
Cobalt-60	U	-0.00499	+/-0.0647	0.127	0.053	+/-0.0647		pCi/g						
Europium-154	U	-0.12	+/-0.203	0.354	0.149	+/-0.210		pCi/g						
Lead-212		1.10	+/-0.172	0.174	0.0808	+/-0.200		pCi/g						
Lead-214		1.22	+/-0.259	0.213	0.0968	+/-0.281		pCi/g						
Potassium-40		22.8	+/-2.72	1.37	0.584	+/-3.35		pCi/g						
Protactinium-231	U	0.695	+/-0.928	1.68	0.781	+/-0.993		pCi/g						
Radium-226		0.954	+/-0.275	0.189	0.0836	+/-0.288		pCi/g						
Radium-228		1.34	+/-0.513	0.391	0.168	+/-0.554		pCi/g						
Thallium-208		0.387	+/-0.102	0.119	0.0536	+/-0.108		pCi/g						
Tin-126	U	0.115	+/-0.148	0.298	0.143	+/-0.157		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		10.5	+/-3.46	3.88	1.64	+/-4.01	4.00	pCi/g		JXB7	12/02/15	1425	1525768	3
Beta		15.1	+/-2.51	2.48	1.13	+/-3.30	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	LYT1	11/10/15	0955	1521927

### 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

Report Date: December 17, 2015

Client Sample ID: 2.1.L.R.1  
Sample ID: 385101010

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lo	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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Company : MJW Corporation  
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Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 2.1.1.R.5

Sample ID: 385101011

Project: MJWC00115

Client ID: MJWC001

### Rad Gamma Spec Analysis

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

Radium-226	1.09	+/-0.243	0.179	pCi/g
Radium-228	1.14	+/-0.349	0.335	pCi/g
Tin-126	0.00	+/-0.192	0.193	pCi/g

### Rad Gas Flow Proportional Counting

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

Alpha	15.2	+/-3.77	3.96	4.00	pCi/g	JXB7	12/02/15	1434	1525768	10
Beta	31.9	+/-3.02	2.28	10.0	pCi/g					

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

Strontium-90	U	-0.654	+/-0.560	1.36	2.00	pCi/g	KSD1	12/02/15	1712	1525755	11
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### Rad Liquid Scintillation Analysis

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

Tritium	U	3.34	+/-2.60	4.09	6.00	pCi/g	TXJ1	12/02/15	2119	1522724	12
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#### Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.367	+/-0.773	1.33	2.00	pCi/g	TXJ1	12/04/15	0600	1522716	13
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#### Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	3.12	+/-2.16	3.55	5.00	pCi/g	MYM1	11/29/15	1442	1522715	14
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### The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	I.YT1	11/10/15	0955	1521927

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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Suite 112  
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Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 2.1.1.R.5

Sample ID: 385101011

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"			88	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			48	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			62.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			94.5	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			91	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			81.5	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			88	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			87.8	(25%-125%)
Technetium-99m Tracer	Liquid Scint Te99, Solid "Dry Weight Corrected"			95.2	(15%-125%)

### Notes:

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

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Report Date: December 17, 2015

Client Sample ID: 2.1.1.R.5  
Sample ID: 385101011  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 38%

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		38.0						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	-0.00704	+/-0.0486	0.118	0.0352	+/-0.0486	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240	U	0.00959	+/-0.0674	0.139	0.0454	+/-0.0675	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232		0.0807	+/-0.102	0.157	0.0535	+/-0.103	1.00	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.14	+/-0.379	0.191	0.0487	+/-0.456	1.00	pCi/g						
Uranium-235/236		0.181	+/-0.164	0.151	0.0282	+/-0.169	1.00	pCi/g						
Uranium-238		0.932	+/-0.342	0.150	0.0281	+/-0.400	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0704	+/-0.163	0.483	0.132	+/-0.163	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.13	+/-0.529	0.459	0.147	+/-0.555	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229		0.0807	+/-0.185	0.294	0.0674	+/-0.186	1.00	pCi/g						
Thorium-230		0.386	+/-0.315	0.324	0.0823	+/-0.320	1.00	pCi/g						
Thorium-232		1.25	+/-0.519	0.253	0.0474	+/-0.550	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241		0.00	+/-0.0354	0.0527	0.00	+/-0.0355	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242		0.00	+/-0.0401	0.0596	0.00	+/-0.0402	1.00	pCi/g						
Curium-243/244		0.0174	+/-0.0488	0.0521	0.00	+/-0.0489	1.00	pCi/g						
Curium-245/246		0.0354	+/-0.0695	0.0964	0.018	+/-0.0697	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-4.74	+/-5.44	9.65	4.69	+/-5.44	15.0	pCi/g		HAKB	11/25/15	1941	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.0436	+/-0.248	0.475	0.193	+/-0.249	1.00	pCi/g		MJH1	12/02/15	1806	1522374	8
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0642	+/-0.373	0.675	0.313	+/-0.375		pCi/g		RXF2	12/03/15	0829	1522386	9
Antimony-125	U	0.0506	+/-0.145	0.272	0.124	+/-0.146		pCi/g						
Bismuth-212	UI	0.00	+/-0.827	1.97	0.906	+/-1.49		pCi/g						
Bismuth-214		1.09	+/-0.243	0.179	0.0796	+/-0.260		pCi/g						
Cesium-137		0.547	+/-0.125	0.105	0.0469	+/-0.133	0.100	pCi/g						
Cobalt-60	U	0.00102	+/-0.0394	0.0847	0.0335	+/-0.0394		pCi/g						
Europium-154	U	-0.13	+/-0.176	0.304	0.128	+/-0.186		pCi/g						
Lead-212		1.17	+/-0.156	0.140	0.0648	+/-0.186		pCi/g						
Lead-214		1.20	+/-0.278	0.475	0.229	+/-0.297		pCi/g						

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Client Sample ID: 2.1.1.R.5  
Sample ID: 385101011

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		18.3	+/-2.31	0.968	0.396	+/-2.80		pCi/g						
Protactinium-231	UI	0.00	+/-0.752	1.35	0.625	+/-0.886		pCi/g						
Radium-226		1.09	+/-0.243	0.179	0.0796	+/-0.260		pCi/g						
Radium-228		1.14	+/-0.349	0.335	0.144	+/-0.387		pCi/g						
Thallium-208		0.416	+/-0.100	0.103	0.0463	+/-0.106		pCi/g						
Tin-126	UI	0.00	+/-0.192	0.193	0.0909	+/-0.194		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		15.2	+/-3.77	3.96	1.73	+/-4.79	4.00	pCi/g		JXB7	12/02/15	1434	1525768	10
Beta		31.9	+/-3.02	2.28	1.05	+/-5.42	10.0	pCi/g						
<i>GFPC, Sr-90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.654	+/-0.560	1.36	0.580	+/-0.560	2.00	pCi/g		KSD1	12/02/15	1712	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium		3.34	+/-2.60	4.09	1.78	+/-2.60	6.00	pCi/g		TXJ1	12/02/15	2119	1522724	12
<i>Liquid Scint C-14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.367	+/-0.773	1.33	0.654	+/-0.773	2.00	pCi/g		TXJ1	12/04/15	0600	1522716	13
<i>Liquid Scint Tc-99, Solid "Dry Weight Corrected"</i>														
Technetium-99		3.12	+/-2.16	3.55	1.71	+/-2.19	5.00	pCi/g		MYM	11/29/15	1442	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	LYT1	11/10/15	0955	1521927

### 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  
Client Sample ID: 2.1.1.R.5  
Sample ID: 385101011

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.
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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	88	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	48	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	62.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	94.5	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1522579	91	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	81.5	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	88	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	87.8	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	95.2	(15%-125%)

### Notes:

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

# GEL LABORATORIES LLC

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## 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: 2.1.2.R.1  
Sample ID: 385101012  
Matrix: Soil  
Collect Date: 23-OCT-15 13:50  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 44.8%

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		44.8				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0756	+/-0.477	0.785		pCi/g		RXF2	12/03/15	0829	1522386	2
Antimony-125	U	0.00758	+/-0.170	0.309		pCi/g						
Cesium-137		0.348	+/-0.169	0.144	0.100	pCi/g						
Cobalt-60	U	-0.0384	+/-0.071	0.130		pCi/g						
Europium-154	U	0.00384	+/-0.250	0.489		pCi/g						
Protactinium-231	U	0.464	+/-0.717	1.34		pCi/g						
Radium-226		0.815	+/-0.223	0.242		pCi/g						
Radium-228		1.30	+/-0.395	0.385		pCi/g						
Tin-126	U	0.0935	+/-0.132	0.221		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		10.3	+/-3.27	3.96	4.00	pCi/g		JXB7	12/02/15	1433	1525768	3
Beta		26.2	+/-3.01	3.22	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	LYT1	11/10/15	0955	1521927

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

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## 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: 2.1.3.R.1  
Sample ID: 385101013  
Matrix: Soil  
Collect Date: 23-OCT-15 14:15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 30.8%

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		30.8				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.140	+/-0.350	0.639		pCi/g		RXP2	12/03/15	0830	1522386	2
Antimony-125	U	0.016	+/-0.134	0.239		pCi/g						
Cesium-137		0.288	+/-0.0732	0.0982	0.100	pCi/g						
Cobalt-60	U	0.00293	+/-0.0494	0.0975		pCi/g						
Europium-154	U	-0.0189	+/-0.156	0.295		pCi/g						
Protactinium-231	U	0.622	+/-0.911	1.17		pCi/g						
Radium-226		1.04	+/-0.206	0.164		pCi/g						
Radium-228		1.22	+/-0.322	0.237		pCi/g						
Tin-126	U	0.0754	+/-0.141	0.183		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		13.8	+/-3.76	3.91	4.00	pCi/g		JXB7	12/02/15	1434	1525768	3
Beta		32.2	+/-3.40	2.94	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	LYT1	11/10/15	0955	1521927

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).

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## Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 2.1.2.R.1  
Sample ID: 385101012  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 44.8%

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		44.8						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0756	+/-0.477	0.785	0.365	+/-0.478		pCi/g		RXF2	12/03/15	0829	1522386	2
Antimony-125	U	0.00758	+/-0.170	0.309	0.140	+/-0.170		pCi/g						
Bismuth-212	UI	0.00	+/-1.11	1.91	0.852	+/-1.11		pCi/g						
Bismuth-214		0.815	+/-0.223	0.242	0.108	+/-0.233		pCi/g						
Cesium-137		0.348	+/-0.169	0.144	0.0648	+/-0.172	0.100	pCi/g						
Cobalt-60	U	-0.0384	+/-0.071	0.130	0.0525	+/-0.0732		pCi/g						
Europium-154	U	0.00384	+/-0.250	0.489	0.211	+/-0.250		pCi/g						
Lead-212		0.874	+/-0.154	0.157	0.0728	+/-0.170		pCi/g						
Lead-214		0.840	+/-0.197	0.217	0.0987	+/-0.208		pCi/g						
Potassium-40		15.9	+/-2.43	1.10	0.425	+/-2.80		pCi/g						
Protactinium-231	U	0.464	+/-0.717	1.34	0.612	+/-0.724		pCi/g						
Radium-226		0.815	+/-0.223	0.242	0.108	+/-0.233		pCi/g						
Radium-228		1.30	+/-0.395	0.385	0.160	+/-0.425		pCi/g						
Thallium-208		0.259	+/-0.129	0.110	0.0486	+/-0.131		pCi/g						
Tin-126	U	0.0935	+/-0.132	0.221	0.105	+/-0.139		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		10.3	+/-3.27	3.96	1.75	+/-3.86	4.00	pCi/g		JXB7	12/02/15	1433	1525768	3
Beta		26.2	+/-3.01	3.22	1.53	+/-4.73	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	LYT1	11/10/15	0955	1521927

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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## 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: 2.1.2.R.1  
Sample ID: 385101012

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

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## 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: 2.1.3.R.1  
Sample ID: 385101013  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 30.8%

Project: MJWC00115  
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		30.8						percent		LYTI	11/10/15	0955	1521927	1
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### Rad Gamma Spec Analysis

Gammascpec. Gamma. Solid "Dry Weight Corrected"

Actinium-227	U	0.140	+/-0.350	0.639	0.301	+/-0.356		pCi/g		RXF2	12/03/15	0830	1522386	2
Antimony-125	U	0.016	+/-0.134	0.239	0.111	+/-0.134		pCi/g						
Bismuth-212	UI	0.00	+/-1.37	1.82	0.854	+/-1.72		pCi/g						
Bismuth-214		1.04	+/-0.206	0.164	0.0747	+/-0.226		pCi/g						
Cesium-137		0.288	+/-0.0732	0.0982	0.0449	+/-0.0774	0.100	pCi/g						
Cobalt-60	U	0.00293	+/-0.0494	0.0975	0.042	+/-0.0494		pCi/g						
Europium-154	U	-0.0189	+/-0.156	0.295	0.129	+/-0.156		pCi/g						
Lead-212		1.23	+/-0.139	0.134	0.0629	+/-0.171		pCi/g						
Lead-214		1.05	+/-0.219	0.182	0.0846	+/-0.236		pCi/g						
Potassium-40		20.4	+/-2.02	0.904	0.384	+/-2.66		pCi/g						
Protactinium-231	UI	0.00	+/-0.911	1.17	0.549	+/-0.922		pCi/g						
Radium-226		1.04	+/-0.206	0.164	0.0747	+/-0.226		pCi/g						
Radium-228		1.22	+/-0.322	0.237	0.100	+/-0.368		pCi/g						
Thallium-208		0.357	+/-0.101	0.0901	0.0412	+/-0.105		pCi/g						
Tin-126	U	0.0754	+/-0.141	0.183	0.0874	+/-0.142		pCi/g						

### Rad Gas Flow Proportional Counting

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

Alpha		13.8	+/-3.76	3.91	1.67	+/-4.61	4.00	pCi/g		JXB7	12/02/15	1434	1525768	3
Beta		32.2	+/-3.40	2.94	1.36	+/-5.71	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	LYTI	11/10/15	0955	1521927

### 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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## 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: 2.1.3.R.1  
Sample ID: 385101013

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

Report Date: January 20, 2016

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 2.1.3.R.2  
Sample ID: 388092014  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 23-DEC-15  
Collector: Client  
Moisture: 23.4%

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>Gammascpec. Gamma. Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.127	+/-0.391	0.692	0.324	+/-0.396		pCi/g		MJH1	01/18/16	0721	1534020	1
Antimony-125	U	0.108	+/-0.151	0.300	0.140	+/-0.159		pCi/g						
Bismuth-212	UI	0.00	+/-1.12	1.98	0.921	+/-1.41		pCi/g						
Bismuth-214		1.04	+/-0.232	0.213	0.0981	+/-0.249		pCi/g						
Cesium-137		0.303	+/-0.0886	0.115	0.0525	+/-0.0924	0.100	pCi/g						
Cobalt-60	U	-0.00758	+/-0.0572	0.108	0.046	+/-0.0573		pCi/g						
Europium-154	UI	0.00	+/-0.166	0.400	0.179	+/-0.222		pCi/g						
Lead-212		1.24	+/-0.157	0.146	0.0684	+/-0.197		pCi/g						
Lead-214		1.24	+/-0.257	0.223	0.104	+/-0.280		pCi/g						
Potassium-40		22.1	+/-2.25	0.793	0.318	+/-2.94		pCi/g						
Protactinium-231	UI	0.00	+/-0.865	1.49	0.701	+/-0.950		pCi/g						
Radium-226		1.04	+/-0.232	0.213	0.0981	+/-0.249		pCi/g						
Radium-228		1.50	+/-0.407	0.346	0.152	+/-0.459		pCi/g						
Thallium-208		0.522	+/-0.106	0.103	0.0469	+/-0.115		pCi/g						
Tin-126	UI	0.00	+/-0.110	0.200	0.0953	+/-0.113		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
I	DOE HASL 300.4 5 2 3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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# GEL LABORATORIES LLC

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## 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: 2.1.3.R.2  
Sample ID: 388092014

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).

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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: 2.1.3.R.2  
Sample ID: 388092004  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 23-DEC-15  
Collector: Client  
Moisture: 23.4%

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		23.4						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		0.102	+/-0.097	0.102	0.0231	+/-0.0982	1.00	pCi/g		MXS2	01/13/16	1052	1534070	2
Plutonium-239/240	U	-0.026	+/-0.0426	0.135	0.040	+/-0.0427	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.00139	+/-0.0639	0.140	0.0441	+/-0.0639	1.00	pCi/g		MXS2	01/12/16	1015	1534063	3
Uranium-233/234		1.25	+/-0.292	0.113	0.0308	+/-0.366	1.00	pCi/g						
Uranium-235/236		0.0992	+/-0.090	0.0826	0.0155	+/-0.0917	1.00	pCi/g						
Uranium-238		1.13	+/-0.276	0.0951	0.0218	+/-0.339	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0129	+/-0.298	0.674	0.216	+/-0.298	1.00	pCi/g		MXS2	01/13/16	1217	1534069	4
<i>Alphaspec Th229 - 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.13	+/-0.756	0.684	0.176	+/-0.806	1.00	pCi/g		MXS2	01/12/16	1031	1534062	5
Thorium-229	U	0.0533	+/-0.296	0.568	0.130	+/-0.297	1.00	pCi/g						
Thorium-230		0.335	+/-0.458	0.625	0.159	+/-0.465	1.00	pCi/g						
Thorium-232		1.20	+/-0.724	0.489	0.0915	+/-0.779	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	0.00709	+/-0.0394	0.0755	0.0173	+/-0.0394	1.00	pCi/g		MXS2	01/12/16	1103	1534067	6
Curium-242		0.00	+/-0.0383	0.057	0.00	+/-0.0383	1.00	pCi/g						
Curium-243/244	U	-0.00325	+/-0.028	0.0649	0.0121	+/-0.0281	1.00	pCi/g						
Curium-245/246		0.0156	+/-0.0438	0.0468	0.00	+/-0.0439	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-7.0	+/-6.45	11.5	5.60	+/-6.45	15.0	pCi/g		MXS2	01/14/16	1516	1534073	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.163	+/-0.426	0.661	0.262	+/-0.433	1.00	pCi/g		MJH1	01/15/16	0848	1535059	8
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0302	+/-0.280	0.493	0.235	+/-0.280		pCi/g		MJH1	12/29/15	1155	1533562	9
Antimony-125	U	-0.0752	+/-0.0966	0.167	0.0779	+/-0.103		pCi/g						
Bismuth-212	U	0.00	+/-0.808	1.37	0.647	+/-1.13		pCi/g						
Bismuth-214		0.820	+/-0.164	0.137	0.064	+/-0.180		pCi/g						
Cesium-137		0.222	+/-0.0669	0.0421	0.0184	+/-0.0699	0.100	pCi/g						
Cobalt-60	U	-0.0195	+/-0.0396	0.0712	0.0313	+/-0.0406		pCi/g						
Europium-154	U	-0.11	+/-0.139	0.227	0.102	+/-0.147		pCi/g						
Lead-212		1.31	+/-0.125	0.110	0.0525	+/-0.173		pCi/g						
Lead-214		0.836	+/-0.188	0.145	0.0685	+/-0.202		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: 2.1.3.R.2  
Sample ID: 388092004

Report Date: January 20, 2016

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		21.4	+/-1.75	0.709	0.312	+/-2.52		pCi/g						
Protactinium-231	U1	0.00	+/-0.637	1.11	0.532	+/-0.791		pCi/g						
Radium-226		0.820	+/-0.164	0.137	0.064	+/-0.180		pCi/g						
Radium-228		1.24	+/-0.304	0.243	0.110	+/-0.359		pCi/g						
Thallium-208		0.415	+/-0.0764	0.0712	0.0332	+/-0.0849		pCi/g						
Th-126	U	0.00	+/-0.133	0.144	0.0693	+/-0.135		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		8.03	+/-2.30	3.33	1.58	+/-2.79	4.00	pCi/g		JXB7	01/11/16	1839	1534760	10
Beta		23.1	+/-1.60	1.45	0.693	+/-3.78	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90		0.609	+/-0.802	1.37	0.600	+/-0.809	2.00	pCi/g		KSD1	01/07/16	1129	1534788	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	-0.623	+/-2.47	4.34	2.10	+/-2.47	6.00	pCi/g		TXJ1	01/10/16	1707	1534918	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	0.0874	+/-0.821	1.40	0.687	+/-0.821	2.00	pCi/g		TXJ1	01/16/16	0753	1534935	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.813	+/-2.06	3.54	1.70	+/-2.06	5.00	pCi/g		MYM	01/19/16	0553	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 EERF C-01 Modified

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## 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: 2.1.3.R.2  
Sample ID: 388092004

Report Date: January 20, 2016

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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	78.7	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	65.3	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	85	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1534069	82.8	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1534062	65.3	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1534067	85.2	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1534073	77.5	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534788	76	(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).

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## 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: 2.1.4.R.2  
Sample ID: 389296001  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 14-JAN-16  
Collector: Client  
Moisture: 32.8%

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		32.8						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	-0.441	+/-0.339	0.554	0.256	+/-0.398		pCi/g		RXF2	02/05/16	0631	1537546	2
Antimony-125	U	0.0499	+/-0.142	0.264	0.122	+/-0.144		pCi/g						
Bismuth-212	UI	0.00	+/-1.31	1.75	0.810	+/-1.49		pCi/g						
Bismuth-214		0.854	+/-0.215	0.164	0.0735	+/-0.226		pCi/g						
Cesium-137		0.829	+/-0.113	0.0977	0.0441	+/-0.131	0.100	pCi/g						
Cobalt-60	U	-0.0209	+/-0.0508	0.0925	0.0387	+/-0.0517		pCi/g						
Europium-154	U	-0.0112	+/-0.145	0.281	0.120	+/-0.145		pCi/g						
Lead-212		1.19	+/-0.141	0.131	0.0611	+/-0.173		pCi/g						
Lead-214		1.07	+/-0.182	0.174	0.0801	+/-0.202		pCi/g						
Potassium-40		17.7	+/-1.99	0.888	0.371	+/-2.51		pCi/g						
Protactinium-231	UI	0.00	+/-0.795	1.08	0.497	+/-0.813		pCi/g						
Radium-226		0.854	+/-0.215	0.164	0.0735	+/-0.226		pCi/g						
Radium-228		1.03	+/-0.394	0.343	0.152	+/-0.421		pCi/g						
Thallium-208		0.422	+/-0.0863	0.101	0.0462	+/-0.093		pCi/g						
Tin-126	UI	0.00	+/-0.124	0.100	0.0461	+/-0.126		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.300	+/-0.408	0.780	0.363	+/-0.432		pCi/g		RXF2	01/18/16	0952	1537545	3
Antimony-125	U	0.146	+/-0.174	0.347	0.160	+/-0.187		pCi/g						
Bismuth-212	UI	0.00	+/-1.23	1.58	0.710	+/-1.24		pCi/g						
Bismuth-214		0.696	+/-0.176	0.204	0.0913	+/-0.187		pCi/g						
Cesium-137		0.667	+/-0.166	0.102	0.0449	+/-0.177	0.100	pCi/g						
Cobalt-60	U	0.0324	+/-0.0703	0.148	0.0642	+/-0.0719		pCi/g						
Europium-154	U	0.020	+/-0.175	0.347	0.147	+/-0.175		pCi/g						
Lead-212		0.941	+/-0.157	0.181	0.0848	+/-0.179		pCi/g						
Lead-214		0.696	+/-0.207	0.240	0.111	+/-0.216		pCi/g						
Potassium-40		16.6	+/-2.16	1.04	0.425	+/-2.58		pCi/g						
Protactinium-231	UI	0.00	+/-1.02	1.47	0.683	+/-1.04		pCi/g						
Radium-226		0.696	+/-0.176	0.204	0.0913	+/-0.187		pCi/g						
Radium-228		1.19	+/-0.335	0.330	0.139	+/-0.381		pCi/g						
Thallium-208		0.294	+/-0.114	0.105	0.047	+/-0.117		pCi/g						
Tin-126	UI	0.00	+/-0.205	0.209	0.0989	+/-0.206		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		15.1	+/-3.77	3.56	1.50	+/-4.75	4.00	pCi/g		KXB2	01/26/16	1151	1539462	4
Beta		27.1	+/-2.91	2.75	1.29	+/-4.77	10.0	pCi/g						

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## 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: 2.1.4.R.2  
Sample ID: 389296001

Report Date: February 10, 2016

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RI	Units	DF	Analyst	Date	Time	Batch	Mtd.
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### 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
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### Notes:

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

# GEL LABORATORIES LLC

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## 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: 2.1.3.R.5

Sample ID: 385101014

Project: MJWC00115

Client ID: MJWC001

### Rad Gamma Spec Analysis

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

Radium-226	0.904	+/-0.206	0.189	pCi/g
Radium-228	1.30	+/-0.429	0.395	pCi/g
Tin-126	U 0.0537	+/-0.150	0.141	pCi/g

### Rad Gas Flow Proportional Counting

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

Alpha	14.8	+/-3.83	3.98	4.00	pCi/g	JXB7	12/02/15	1437	1525768	10
Beta	32.2	+/-3.48	3.52	10.0	pCi/g					

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

Strontium-90	U 0.706	+/-0.901	1.53	2.00	pCi/g	KSD1	12/02/15	1712	1525755	11
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### Rad Liquid Scintillation Analysis

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

Tritium	U 2.92	+/-2.17	3.39	6.00	pCi/g	TXJ1	12/02/15	2207	1522724	12
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#### Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U -0.771	+/-0.904	1.57	2.00	pCi/g	TXJ1	12/04/15	0633	1522716	13
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#### Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U 0.482	+/-1.54	2.65	5.00	pCi/g	MYM1	11/29/15	1509	1522715	14
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### The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/10/15	0955	1521927

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## 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: 2.1.3.R.5  
Sample ID: 385101014

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-03-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"			73.5	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			57.6	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			61.8	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			88.8	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			86.9	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			101	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			73.5	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			88.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"			93.4	(15%-125%)

### Notes:

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

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## 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: 2.1.3.R.5  
Sample ID: 385101014  
Matrix: Soil  
Collect Date: 23-OCT-15 14:25  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 25.5%

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		25.5				percent		LYT1	11/10/15	0955	1521927	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	-0.0185	+/-0.0428	0.127	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240	U	0.0546	+/-0.0967	0.161	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	-0.0456	+/-0.0927	0.227	1.00	pci/g		HAKB	11/30/15	2226	1522580	3
Uranium-233/234		1.08	+/-0.212	0.0973	1.00	pci/g						
Uranium-235/236	U	0.0722	+/-0.0726	0.104	1.00	pci/g						
Uranium-238		1.08	+/-0.210	0.0729	1.00	pci/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	-0.0367	+/-0.162	0.424	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		1.50	+/-0.741	0.618	1.00	pCi/g		HAKB	11/24/15	1025	1522579	5
Thorium-229	U	-0.035	+/-0.242	0.589	1.00	pCi/g						
Thorium-230		0.858	+/-0.569	0.557	1.00	pCi/g						
Thorium-232		1.74	+/-0.745	0.237	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241	U	0.0159	+/-0.0447	0.0477	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242	U	0.00	+/-0.0363	0.054	1.00	pCi/g						
Curium-243/244	U	-0.00377	+/-0.0325	0.0754	1.00	pCi/g						
Curium-245/246	X	0.0546	+/-0.0719	0.0546	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	-1.72	+/-6.59	11.5	15.0	pCi/g		HAKB	11/25/15	2043	1522578	7
Rad Gamma Spec Analysis												
Gamma 1129, Solid "Dry Weight Corrected"												
Iodine-129	U	0.0945	+/-0.141	0.484	1.00	pCi/g		MJH1	12/02/15	1807	1522374	8
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0787	+/-0.370	0.660		pCi/g		RXF2	12/03/15	0830	1522386	9
Antimony-125	U	-0.0421	+/-0.149	0.249		pCi/g						
Cesium-137		0.222	+/-0.0932	0.0969	0.100	pCi/g						
Cobalt-60	U	0.0191	+/-0.0571	0.116		pCi/g						
Europium-154	U	-0.0293	+/-0.222	0.407		pCi/g						
Protactinium-231	UI	0.00	+/-0.894	1.19		pCi/g						

# GEL LABORATORIES LLC

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## 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: 2.1.3.R.5  
Sample ID: 385101014  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 25.5%

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		25.5						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	-0.0185	+/-0.0428	0.127	0.0346	+/-0.0429	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240		0.0546	+/-0.0967	0.161	0.0518	+/-0.097	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.0456	+/-0.0927	0.227	0.0858	+/-0.0928	1.00	pci/g		HAKB	11/30/15	2226	1522580	3
Uranium-233/234		1.08	+/-0.212	0.0973	0.0331	+/-0.285	1.00	pci/g						
Uranium-235/236		0.0722	+/-0.0726	0.104	0.0364	+/-0.0737	1.00	pci/g						
Uranium-238		1.08	+/-0.210	0.0729	0.021	+/-0.285	1.00	pci/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0367	+/-0.162	0.424	0.0971	+/-0.163	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.50	+/-0.741	0.618	0.186	+/-0.784	1.00	pCi/g		HAKB	11/24/15	1025	1522579	5
Thorium-229	U	-0.035	+/-0.242	0.589	0.175	+/-0.242	1.00	pCi/g						
Thorium-230		0.858	+/-0.569	0.557	0.159	+/-0.586	1.00	pCi/g						
Thorium-232		1.74	+/-0.745	0.237	0.00	+/-0.799	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241		0.0159	+/-0.0447	0.0477	0.00	+/-0.0448	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242		0.00	+/-0.0363	0.054	0.00	+/-0.0364	1.00	pCi/g						
Curium-243/244	U	-0.00377	+/-0.0325	0.0754	0.0141	+/-0.0326	1.00	pCi/g						
Curium-245/246	X	0.0546	+/-0.0719	0.0546	0.00	+/-0.0722	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-1.72	+/-6.59	11.5	5.57	+/-6.59	15.0	pCi/g		HAKB	11/25/15	2043	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	0.0945	+/-0.141	0.484	0.168	+/-0.148	1.00	pCi/g		MJH1	12/02/15	1807	1522374	8
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0787	+/-0.370	0.660	0.311	+/-0.371		pCi/g		RXF2	12/03/15	0830	1522386	9
Antimony-125	U	-0.0421	+/-0.149	0.249	0.115	+/-0.150		pCi/g						
Bismuth-212	UI	0.00	+/-0.961	1.77	0.825	+/-1.16		pCi/g						
Bismuth-214		0.904	+/-0.206	0.189	0.0867	+/-0.221		pCi/g						
Cesium-137		0.222	+/-0.0932	0.0969	0.044	+/-0.0953	0.100	pCi/g						
Cobalt-60	U	0.0191	+/-0.0571	0.116	0.0506	+/-0.0578		pCi/g						
Europium-154	U	-0.0293	+/-0.222	0.407	0.184	+/-0.222		pCi/g						
Lead-212		1.36	+/-0.144	0.128	0.0602	+/-0.190		pCi/g						
Lead-214		1.14	+/-0.204	0.178	0.0826	+/-0.228		pCi/g						

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## 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: 2.1.3.R.5  
Sample ID: 385101014

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.
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### Rad Gamma Spec Analysis

*GammaSpec, Gamma, Solid "Dry Weight Corrected"*

Potassium-40		23.4	+/-2.39	0.990	0.421	+/-3.11		pCi/g						
Protactinium-231	UI	0.00	+/-0.894	1.19	0.558	+/-0.946		pCi/g						
Radium-226		0.904	+/-0.206	0.189	0.0867	+/-0.221		pCi/g						
Radium-228		1.30	+/-0.429	0.395	0.178	+/-0.476		pCi/g						
Thallium-208		0.438	+/-0.0875	0.0877	0.0398	+/-0.0959		pCi/g						
Tin-126	U	0.0537	+/-0.150	0.141	0.0658	+/-0.152		pCi/g						

### Rad Gas Flow Proportional Counting

*GFPC, Gross A-B, solid "Dry Weight Corrected"*

Alpha		14.8	+/-3.83	3.98	1.72	+/-4.78	4.00	pCi/g		JXB7	12/02/15	1437	1525768	10
Beta		32.2	+/-3.48	3.52	1.66	+/-5.76	10.0	pCi/g						

*GFPC, Sr-90, solid "Dry Weight Corrected"*

Strontium-90		0.706	+/-0.901	1.53	0.670	+/-0.910	2.00	pCi/g		KSD1	12/02/15	1712	1525755	11
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### Rad Liquid Scintillation Analysis

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

Tritium		2.92	+/-2.17	3.39	1.48	+/-2.18	6.00	pCi/g		TXJ1	12/02/15	2207	1522724	12
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*Liquid Scint C14, Solid "Dry Weight Corrected"*

Carbon-14	U	-0.771	+/-0.904	1.57	0.772	+/-0.904	2.00	pCi/g		TXJ1	12/04/15	0633	1522716	13
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*Liquid Scint Tc99, Solid "Dry Weight Corrected"*

Technetium-99	U	0.482	+/-1.54	2.65	1.28	+/-1.54	5.00	pCi/g		MYM	11/29/15	1509	1522715	14
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### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/10/15	0955	1521927

### 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

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## 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: 2.1.3.R.5  
Sample ID: 385101014

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	73.5	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic. Solid "Dry Weight Corrected"	1522580	57.6	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic. Solid "Dry Weight Corrected"	1522580	61.8	(15%-125%)
Americium-243 Tracer	Alphaspec Np237. Solid "Dry Weight Corrected"	1522576	88.8	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228.230.232 Solid "Dry Weight Corrected"	1522579	86.9	(15%-125%)
Americium-243 Tracer	Am241. Cm Solid "Dry Weight Corrected"	1522571	101	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	73.5	(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	95.4	(15%-125%)

### Notes:

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

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## 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: 2.1.4.R.1  
Sample ID: 385101015  
Matrix: Soil  
Collect Date: 23-OCT-15 14:40  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 46.3%

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		46.3				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.154	+/-0.379	0.649		pCi/g		RXF2	12/03/15	0831	1522386	2
Antimony-125	U	0.023	+/-0.153	0.270		pCi/g						
Cesium-137		0.940	+/-0.124	0.083	0.100	pCi/g						
Cobalt-60	U	0.0155	+/-0.0656	0.113		pCi/g						
Europium-154	U	0.0304	+/-0.208	0.345		pCi/g						
Protactinium-231	UI	0.00	+/-0.669	1.04		pCi/g						
Radium-226		0.714	+/-0.197	0.194		pCi/g						
Radium-228		0.983	+/-0.339	0.304		pCi/g						
Tin-126	U	0.208	+/-0.124	0.228		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		9.24	+/-3.19	3.92	4.00	pCi/g		JXB7	12/02/15	1435	1525768	3
Beta		26.8	+/-2.95	2.71	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	LYT1	11/10/15	0955	1521927

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).

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## 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: 2.1.4.R.1  
Sample ID: 385101015  
Matrix: Soil  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 46.3%

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		46.3						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.154	+/-0.379	0.649	0.304	+/-0.386		pCi/g		RXF2	12/03/15	0831	1522386	2
Antimony-125	U	0.023	+/-0.153	0.270	0.125	+/-0.154		pCi/g						
Bismuth-212		1.73	+/-1.05	1.29	0.581	+/-1.06		pCi/g						
Bismuth-214		0.714	+/-0.197	0.194	0.0891	+/-0.207		pCi/g						
Cesium-137		0.940	+/-0.124	0.083	0.0369	+/-0.150	0.100	pCi/g						
Cobalt-60	U	0.0155	+/-0.0656	0.113	0.0493	+/-0.066		pCi/g						
Europium-154	U	0.0304	+/-0.208	0.345	0.152	+/-0.208		pCi/g						
Lead-212		0.728	+/-0.143	0.148	0.0699	+/-0.156		pCi/g						
Lead-214		1.01	+/-0.188	0.201	0.0939	+/-0.208		pCi/g						
Potassium-40		15.5	+/-1.88	0.840	0.346	+/-2.30		pCi/g						
Protactinium-231	UI	0.00	+/-0.669	1.04	0.480	+/-0.737		pCi/g						
Radium-226		0.714	+/-0.197	0.194	0.0891	+/-0.207		pCi/g						
Radium-228		0.983	+/-0.339	0.304	0.132	+/-0.370		pCi/g						
Thallium-208		0.260	+/-0.0965	0.0944	0.043	+/-0.0993		pCi/g						
Tin-126	UI	0.00	+/-0.124	0.228	0.109	+/-0.157		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		9.24	+/-3.19	3.92	1.71	+/-3.63	4.00	pCi/g		JXB7	12/02/15	1435	1525768	3
Beta		26.8	+/-2.95	2.71	1.26	+/-4.48	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	LYT1	11/10/15	0955	1521927

### 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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### 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: 2.1.4.R.1  
Sample ID: 385101015

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.	
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

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## 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: 2.1.4.R.6  
Sample ID: 385101016  
Matrix: Water  
Collect Date: 23-OCT-15 15:50  
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	26.9	+/-27.0	52.1		pCi/L		MJH1	11/17/15	0712	1521915	1
Antimony-125	U	4.70	+/-8.70	16.6		pCi/L						
Cesium-137	U	-2.31	+/-3.68	6.47	10.0	pCi/L						
Cobalt-60	U	-1.13	+/-3.71	6.93		pCi/L						
Europium-154	U	-3.4	+/-10.3	19.3		pCi/L						
Protactinium-231	U	3.68	+/-51.3	93.2		pCi/L						
Radium-228	U	-3.95	+/-18.1	28.1		pCi/L						
Tin-126	U	0.580	+/-9.88	16.3		pCi/L						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, liquid "As Received"												
Alpha	U	2.30	+/-2.34	3.73	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	0.780	+/-2.45	4.41	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).

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## 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: 2.1.4.R.6  
Sample ID: 385101016  
Matrix: Water  
Collect Date: 23-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client

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, Liquid (Standard List) "As Received"</i>														
Actinium-227	UI	0.00	+/-27.0	52.1	24.7	+/-29.9		pCi/L		MJH1	11/17/15	0712	1521915	1
Antimony-125	U	4.70	+/-8.70	16.6	7.66	+/-8.96		pCi/L						
Bismuth-212	U	27.7	+/-53.0	104	47.6	+/-54.5		pCi/L						
Bismuth-214	U	1.92	+/-13.5	17.4	8.14	+/-13.5		pCi/L						
Cesium-137	U	-2.31	+/-3.68	6.47	2.92	+/-3.83	10.0	pCi/L						
Cobalt-60	U	-1.13	+/-3.71	6.93	2.97	+/-3.74		pCi/L						
Europium-154	U	-3.4	+/-10.3	19.3	8.27	+/-10.4		pCi/L						
Lead-212	UI	0.00	+/-9.61	14.1	6.77	+/-10.1		pCi/L						
Lead-214	U	-6.06	+/-10.1	14.7	6.88	+/-10.5		pCi/L						
Potassium-40	U	16.4	+/-63.1	78.1	34.0	+/-63.1		pCi/L						
Protactinium-231	U	3.68	+/-51.3	93.2	43.8	+/-51.4		pCi/L						
Radium-228	U	-3.95	+/-18.1	28.1	12.7	+/-18.2		pCi/L						
Thallium-208	UI	0.00	+/-6.73	6.79	3.10	+/-6.74		pCi/L						
Tin-126	U	0.580	+/-9.88	16.3	7.74	+/-9.89		pCi/L						

### Rad Gas Flow Proportional Counting

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

Alpha		2.30	+/-2.34	3.73	1.44	+/-2.37	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	0.780	+/-2.45	4.41	1.95	+/-2.46	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

Client Sample ID: 2.14.R.7  
Sample ID: 385101017  
Matrix: Water  
Collect Date: 23-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	-0.931	+/-27.1	48.3	22.8	+/-27.1		pCi/L		MJH1	11/17/15	0713	1521915	1
Antimony-125	U	5.58	+/-8.83	17.4	8.04	+/-9.19		pCi/L						
Bismuth-212	U	45.2	+/-56.9	105	47.9	+/-60.6		pCi/L						
Bismuth-214	U	3.34	+/-10.1	16.8	7.85	+/-10.2		pCi/L						
Cesium-137	U	-1.14	+/-3.71	6.56	2.97	+/-3.74	10.0	pCi/L						
Cobalt-60	U	-1.93	+/-4.34	7.89	3.46	+/-4.43		pCi/L						
Europium-154	U	1.81	+/-10.3	20.3	8.79	+/-10.3		pCi/L						
Lead-212	U	0.00	+/-11.6	14.1	6.76	+/-12.5		pCi/L						
Lead-214	U	8.04	+/-11.6	18.2	8.64	+/-12.1		pCi/L						
Potassium-40	U	-14.9	+/-53.9	88.4	39.3	+/-54.4		pCi/L						
Protactinium-231	U	-4.21	+/-55.7	98.0	46.3	+/-55.8		pCi/L						
Radium-228	U	-5.09	+/-16.9	29.0	13.2	+/-17.1		pCi/L						
Thallium-208	U	2.34	+/-5.38	7.05	3.24	+/-5.38		pCi/L						
Tin-126	U	4.05	+/-11.3	14.6	6.95	+/-11.4		pCi/L						

### Rad Gas Flow Proportional Counting

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

Alpha		3.66	+/-2.84	4.25	1.72	+/-2.90	5.00	pCi/L		JXB7	12/02/15	1327	1525771	2
Beta	U	1.50	+/-2.51	4.35	1.92	+/-2.52	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
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### Notes:

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

# GEL LABORATORIES LLC

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## 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: 2-1.4.R.7  
Sample ID: 385101017  
Matrix: Water  
Collect Date: 23-OCT-15 16:00  
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												
Gammaspec, Gamma, Liquid (Standard List) "As Received"												
Actinium-227	U	-0.931	+/-27.1	48.3		pCi/L		MJH1	11/17/15	0713	1521915	1
Antimony-125	U	5.58	+/-8.83	17.4		pCi/L						
Cesium-137	U	-1.14	+/-3.71	6.56	10.0	pCi/L						
Cobalt-60	U	-1.93	+/-4.34	7.89		pCi/L						
Europium-154	U	1.81	+/-10.3	20.3		pCi/L						
Protactinium-231	U	-4.21	+/-55.7	98.0		pCi/L						
Radium-228	U	-5.09	+/-16.9	29.0		pCi/L						
Tin-126	U	4.05	+/-11.3	14.6		pCi/L						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, liquid "As Received"												
Alpha	U	3.66	+/-2.84	4.25	5.00	pCi/L		JXB7	12/02/15	1327	1525771	2
Beta	U	1.50	+/-2.51	4.35	5.00	pCi/L						

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901 I	
2	EPA 900 0/SW846 9310	

### Notes:

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

Appendix G-  
Sub-Area 2.2- COA

# GEL LABORATORIES LLC

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## 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: 2.2.1.R.1  
Sample ID: 385101018  
Matrix: Soil  
Collect Date: 26-OCT-15 10:15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 29.9%

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		29.9				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0818	+/-0.296	0.517		pCi/g		RXP2	12/03/15	0838	1522386	2
Antimony-125	U	0.0347	+/-0.117	0.214		pCi/g						
Cesium-137		1.42	+/-0.147	0.0859	0.100	pCi/g						
Cobalt-60	U	-0.00874	+/-0.0437	0.0836		pCi/g						
Europium-154	U	-0.0547	+/-0.148	0.229		pCi/g						
Protactinium-231	U	0.352	+/-0.617	1.14		pCi/g						
Radium-226		0.500	+/-0.163	0.164		pCi/g						
Radium-228		0.506	+/-0.235	0.301		pCi/g						
Tin-126	U	0.0508	+/-0.124	0.191		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		17.1	+/-4.43	3.95	4.00	pCi/g		KXB2	12/02/15	1456	1525769	3
Beta		29.2	+/-3.85	3.28	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	LYT1	11/10/15	0955	1521927

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**

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**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: 2.2.1.R.1  
 Sample ID: 385101018  
 Matrix: Soil  
 Collect Date: 26-OCT-15  
 Receive Date: 05-NOV-15  
 Collector: Client  
 Moisture: 29.9%

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		29.9						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammameter, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0818	+/-0.296	0.517	0.241	+/-0.298		pCi/g		RXF2	12/03/15	0838	1522386	2
Antimony-125	U	0.0347	+/-0.117	0.214	0.0987	+/-0.118		pCi/g						
Bismuth-212	UI	0.00	+/-0.927	1.32	0.603	+/-1.08		pCi/g						
Bismuth-214		0.500	+/-0.163	0.164	0.0746	+/-0.168		pCi/g						
Cesium-137		1.42	+/-0.147	0.0859	0.0388	+/-0.187	0.100	pCi/g						
Cobalt-60	U	-0.00874	+/-0.0437	0.0836	0.0353	+/-0.0439		pCi/g						
Europium-154	U	-0.0547	+/-0.148	0.229	0.0966	+/-0.150		pCi/g						
Lead-212		0.596	+/-0.110	0.118	0.0553	+/-0.120		pCi/g						
Lead-214		0.581	+/-0.182	0.182	0.085	+/-0.187		pCi/g						
Potassium-40		5.34	+/-1.15	0.534	0.202	+/-1.27		pCi/g						
Protactinium-231	U	0.352	+/-0.617	1.14	0.535	+/-0.642		pCi/g						
Radium-226		0.500	+/-0.163	0.164	0.0746	+/-0.168		pCi/g						
Radium-228		0.506	+/-0.235	0.301	0.133	+/-0.243		pCi/g						
Thallium-208		0.150	+/-0.0864	0.073	0.0328	+/-0.0873		pCi/g						
Tin-126	U	0.0508	+/-0.124	0.191	0.0917	+/-0.126		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		17.1	+/-4.43	3.95	1.61	+/-5.53	4.00	pCi/g		KXB2	12/02/15	1456	1525769	3
Beta		29.2	+/-3.85	3.28	1.49	+/-5.67	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	LYT1	11/10/15	0955	1521927

**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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# GEL LABORATORIES LLC

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## 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: 2.2.1.R.1  
Sample ID: 385101018

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

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## 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: 2.2.I.R.2  
Sample ID: 389296002  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 14-JAN-16  
Collector: Client  
Moisture: 16.2%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mid.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		16.2						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	-0.0224	+/-0.302	0.533	0.244	+/-0.302		pCi/g	RXF2		02/05/16	0730	1537546	2
Antimony-125	U	0.0473	+/-0.109	0.217	0.0973	+/-0.111		pCi/g						
Bismuth-212	U	0.597	+/-0.951	1.43	0.645	+/-0.990		pCi/g						
Bismuth-214		0.716	+/-0.148	0.123	0.0523	+/-0.159		pCi/g						
Cesium-137		0.317	+/-0.0777	0.0775	0.0336	+/-0.0821	0.100	pCi/g						
Cobalt-60	U	0.0101	+/-0.0516	0.108	0.0455	+/-0.0518		pCi/g						
Europium-154	U	0.0415	+/-0.205	0.264	0.110	+/-0.205		pCi/g						
Lead-212		0.626	+/-0.147	0.132	0.0613	+/-0.157		pCi/g						
Lead-214		0.794	+/-0.170	0.167	0.0758	+/-0.183		pCi/g						
Potassium-40		6.26	+/-1.52	0.894	0.366	+/-1.61		pCi/g						
Protactinium-231	UI	0.00	+/-0.863	1.01	0.458	+/-0.882		pCi/g						
Radium-226		0.716	+/-0.148	0.123	0.0523	+/-0.159		pCi/g						
Radium-228		0.882	+/-0.293	0.282	0.119	+/-0.321		pCi/g						
Thallium-208		0.148	+/-0.0965	0.101	0.0458	+/-0.0973		pCi/g						
Tin-126	U	0.0695	+/-0.102	0.171	0.080	+/-0.103		pCi/g						
<i>Gamma spec. Gamma. Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.00337	+/-0.280	0.505	0.229	+/-0.280		pCi/g	RXF2		01/18/16	0953	1537545	3
Antimony-125	U	-0.0403	+/-0.104	0.187	0.0823	+/-0.105		pCi/g						
Bismuth-212	U	0.235	+/-0.653	1.31	0.583	+/-0.662		pCi/g						
Bismuth-214		0.346	+/-0.182	0.181	0.0817	+/-0.184		pCi/g						
Cesium-137		0.255	+/-0.0635	0.0951	0.0424	+/-0.0669	0.100	pCi/g						
Cobalt-60	U	-0.00159	+/-0.0359	0.0765	0.030	+/-0.0359		pCi/g						
Europium-154	U	0.0216	+/-0.105	0.233	0.0938	+/-0.105		pCi/g						
Lead-212		0.764	+/-0.125	0.105	0.0478	+/-0.142		pCi/g						
Lead-214		0.725	+/-0.197	0.167	0.0758	+/-0.206		pCi/g						
Potassium-40		6.34	+/-1.28	0.945	0.391	+/-1.39		pCi/g						
Protactinium-231	UI	0.00	+/-0.610	0.813	0.361	+/-0.647		pCi/g						
Radium-226		0.346	+/-0.182	0.181	0.0817	+/-0.184		pCi/g						
Radium-228		0.522	+/-0.253	0.282	0.119	+/-0.264		pCi/g						
Thallium-208		0.170	+/-0.0689	0.0718	0.0312	+/-0.0703		pCi/g						
Tin-126	UI	0.00	+/-0.141	0.191	0.0902	+/-0.142		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A.B. solid "Dry Weight Corrected"</i>														
Alpha		10.0	+/-3.26	3.92	1.71	+/-3.79	4.00	pCi/g	KXB2		01/26/16	1151	1539462	4
Beta		18.6	+/-2.67	2.77	1.29	+/-3.78	10.0	pCi/g						

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## 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: 2.2.1-R-2  
Sample ID: 389296002

Project: MJWC00115  
Client ID: MJWC001

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

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

# GEL LABORATORIES LLC

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## 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: 2.2.1.R.5  
Sample ID: 385101019  
Matrix: Soil  
Collect Date: 26-OCT-15 10:20  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 31%

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		31.0				percent		LYT1	11/10/15	0955	1521927	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	-0.00894	+/-0.0395	0.103	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240	U	0.101	+/-0.121	0.185	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	-0.0374	+/-0.162	0.366	1.00	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.646	+/-0.442	0.541	1.00	pCi/g						
Uranium-235/236	U	0.162	+/-0.240	0.351	1.00	pCi/g						
Uranium-238		0.519	+/-0.347	0.255	1.00	pCi/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	0.0856	+/-0.330	0.640	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228	U	0.358	+/-0.337	0.395	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0917	+/-0.242	0.435	1.00	pCi/g						
Thorium-230		0.589	+/-0.403	0.386	1.00	pCi/g						
Thorium-232	U	0.278	+/-0.283	0.280	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241	U	0.0545	+/-0.0745	0.101	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242	U	0.00	+/-0.0374	0.0557	1.00	pCi/g						
Curium-243/244	U	0.000657	+/-0.0487	0.108	1.00	pCi/g						
Curium-245/246	U	0.0144	+/-0.0542	0.0912	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	1.35	+/-6.31	10.8	15.0	pCi/g		HAKB	11/25/15	2144	1522578	7
Rad Gamma Spec Analysis												
Gamma I129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.342	+/-0.303	0.443	1.00	pCi/g		MJH1	12/02/15	1814	1522374	8
Gamma spec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0467	+/-0.327	0.583		pCi/g		RXF2	12/03/15	0839	1522386	9
Antimony-125	U	-0.101	+/-0.136	0.229		pCi/g						
Cesium-137		1.23	+/-0.145	0.0909	0.100	pCi/g						
Cobalt-60	U	-0.0565	+/-0.0495	0.0726		pCi/g						
Europium-154	U	0.017	+/-0.121	0.241		pCi/g						
Protactinium-231	U	0.00	+/-1.34	0.965		pCi/g						

# GEL LABORATORIES LLC

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## 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: 2.2.1.R.5  
Sample ID: 385101019

Project: MJWC00115  
Client ID: MJWC001

### Rad Gamma Spec Analysis

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

Radium-226		0.645	+/-0.158	0.147	pCi/g
Radium-228	U	0.545	+/-0.317	0.554	pCi/g
Th-232	U	0.0515	+/-0.122	0.186	pCi/g

### Rad Gas Flow Proportional Counting

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

Alpha		8.88	+/-3.77	3.80	4.00	pCi/g	KXB2	12/02/15	1456	1525769	10
Beta		12.0	+/-3.25	3.62	10.0	pCi/g					

#### GFPC, Sr-90, solid "Dry Weight Corrected"

Sr-90	U	1.59	+/-1.12	1.78	2.00	pCi/g	KSDI	12/03/15	1516	1525755	11
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### Rad Liquid Scintillation Analysis

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

Tritium	U	0.514	+/-1.97	3.63	6.00	pCi/g	TXJ1	12/02/15	2254	1522724	12
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#### Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.751	+/-0.672	1.17	2.00	pCi/g	TXJ1	12/04/15	0802	1522716	13
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#### Liquid Scint Tc-99, Solid "Dry Weight Corrected"

Technetium-99	U	1.66	+/-2.06	3.48	5.00	pCi/g	MYM1	11/29/15	1535	1522715	14
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The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYTI	11/10/15	0955	1521927

# 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: 2.2.1.R.5  
Sample ID: 385101019

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 FERR 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"			78.2	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			37.1	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			28.2	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			83.1	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			90.7	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			92.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			78.2	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			88.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"			94.8	(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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 2.2.1.R.5  
Sample ID: 385101019  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 31%

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		31.0						percent		LYTI	11/10/15	0955	1521927	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	-0.00894	+/-0.0395	0.103	0.0236	+/-0.0396	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240		0.101	+/-0.121	0.185	0.0647	+/-0.121	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.0374	+/-0.162	0.366	0.138	+/-0.163	1.00	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.646	+/-0.442	0.541	0.191	+/-0.477	1.00	pCi/g						
Uranium-235/236		0.162	+/-0.240	0.351	0.0957	+/-0.244	1.00	pCi/g						
Uranium-238		0.519	+/-0.347	0.255	0.0477	+/-0.376	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	0.0856	+/-0.330	0.640	0.201	+/-0.330	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
<i>Alphaspec Th229 - 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		0.358	+/-0.337	0.395	0.107	+/-0.343	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0917	+/-0.242	0.435	0.129	+/-0.242	1.00	pCi/g						
Thorium-230		0.589	+/-0.403	0.386	0.105	+/-0.412	1.00	pCi/g						
Thorium-232		0.278	+/-0.283	0.280	0.0525	+/-0.286	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241		0.0545	+/-0.0745	0.101	0.0258	+/-0.0748	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242		0.00	+/-0.0374	0.0557	0.00	+/-0.0375	1.00	pCi/g						
Curium-243/244	U	0.000657	+/-0.0487	0.108	0.0295	+/-0.0487	1.00	pCi/g						
Curium-245/246	U	0.0144	+/-0.0542	0.0912	0.0171	+/-0.0543	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	1.35	+/-6.31	10.8	5.26	+/-6.31	15.0	pCi/g		HAKB	11/25/15	2144	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.342	+/-0.303	0.443	0.191	+/-0.342	1.00	pCi/g		MJH1	12/02/15	1814	1522374	8
<i>Gammiaspec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0467	+/-0.327	0.583	0.273	+/-0.328		pCi/g		RXF2	12/03/15	0839	1522386	9
Antimony-125	U	-0.101	+/-0.136	0.229	0.106	+/-0.143		pCi/g						
Bismuth-212	UI	0.00	+/-0.685	1.44	0.665	+/-0.856		pCi/g						
Bismuth-214		0.645	+/-0.158	0.147	0.0661	+/-0.168		pCi/g						
Cesium-137		1.23	+/-0.145	0.0909	0.0413	+/-0.180	0.100	pCi/g						
Cobalt-60	U	-0.0565	+/-0.0495	0.0726	0.0296	+/-0.0558		pCi/g						
Europium-154	U	0.017	+/-0.121	0.241	0.102	+/-0.121		pCi/g						
Lead-212		0.382	+/-0.119	0.143	0.0679	+/-0.124		pCi/g						
Lead-214		0.643	+/-0.200	0.342	0.165	+/-0.209		pCi/g						

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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: 2.2.1.R.5  
Sample ID: 385101019

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		5.44	+/-1.15	0.451	0.158	+/-1.24		pCi/g						
Protactinium-231	UI	0.00	+/-1.34	0.965	0.446	+/-1.47		pCi/g						
Radium-226		0.645	+/-0.158	0.147	0.0661	+/-0.168		pCi/g						
Radium-228	UI	0.00	+/-0.317	0.554	0.259	+/-0.409		pCi/g						
Thallium-208		0.0771	+/-0.0784	0.0932	0.0428	+/-0.0787		pCi/g						
Tin-126	U	0.0515	+/-0.122	0.186	0.0892	+/-0.122		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		8.88	+/-3.77	3.80	1.45	+/-4.25	4.00	pCi/g		KXB2	12/02/15	1456	1525769	10
Beta		12.0	+/-3.25	3.62	1.59	+/-3.67	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90		1.59	+/-1.12	1.78	0.813	+/-1.16	2.00	pCi/g		KSD1	12/03/15	1516	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	0.514	+/-1.97	3.63	1.59	+/-1.97	6.00	pCi/g		TXJ1	12/02/15	2254	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.751	+/-0.672	1.17	0.574	+/-0.672	2.00	pCi/g		TXJ1	12/04/15	0802	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	1.66	+/-2.06	3.48	1.68	+/-2.07	5.00	pCi/g		MYM	11/29/15	1535	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	LYT1	11/10/15	0955	1521927

### 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

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## 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: 2.2.1.R.5  
Sample ID: 385101019

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-99-RC Modified												

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	78.2	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	28.2	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	37.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	83.1	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1522579	90.7	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	92.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	78.2	(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	94.8	(15%-125%)

### Notes:

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

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## 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: 2.2.2.R.1  
Sample ID: 385101020  
Matrix: Soil  
Collect Date: 26-OCT-15 11:15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 26.6%

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		26.6				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
GammaSpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.348	+/-0.489	0.730		pCi/g		RXF2	12/03/15	0839	1522386	2
Antimony-125	U	-0.104	+/-0.177	0.261		pCi/g						
Cesium-137		1.40	+/-0.165	0.0946	0.100	pCi/g						
Cobalt-60	U	0.0232	+/-0.0458	0.102		pCi/g						
Europium-154	U	-0.0642	+/-0.151	0.255		pCi/g						
Protactinium-231	U	0.175	+/-0.833	1.32		pCi/g						
Radium-226		0.677	+/-0.184	0.187		pCi/g						
Radium-228		0.571	+/-0.293	0.315		pCi/g						
Tin-126	U	-0.0741	+/-0.135	0.231		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		6.47	+/-2.86	3.95	4.00	pCi/g		KXB2	12/02/15	1456	1525769	3
Beta		16.4	+/-3.07	4.01	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	LYT1	11/10/15	0955	1521927

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).

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## 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: 2.2.2.R.1  
Sample ID: 385101020  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 26.6%

Project: MJWC00115  
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		26.6						percent		LYT1	11/10/15	0955	1521927	1
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### Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	UI	0.00	+/-0.489	0.730	0.342	+/-0.516		pCi/g		RXF2	12/03/15	0839	1522386	2
Antimony-125	U	-0.104	+/-0.177	0.261	0.119	+/-0.183		pCi/g						
Bismuth-212	UI	0.00	+/-0.611	1.41	0.634	+/-0.772		pCi/g						
Bismuth-214		0.677	+/-0.184	0.187	0.0843	+/-0.193		pCi/g						
Cesium-137		1.40	+/-0.165	0.0946	0.0421	+/-0.203	0.100	pCi/g						
Cobalt-60	U	0.0232	+/-0.0458	0.102	0.0427	+/-0.047		pCi/g						
Europium-154	U	-0.0642	+/-0.151	0.255	0.105	+/-0.154		pCi/g						
Lead-212		0.667	+/-0.139	0.145	0.0679	+/-0.151		pCi/g						
Lead-214		0.764	+/-0.242	0.185	0.0845	+/-0.250		pCi/g						
Potassium-40		6.12	+/-1.21	0.827	0.330	+/-1.32		pCi/g						
Protactinium-231	U	0.175	+/-0.833	1.32	0.614	+/-0.838		pCi/g						
Radium-226		0.677	+/-0.184	0.187	0.0843	+/-0.193		pCi/g						
Radium-228		0.571	+/-0.293	0.315	0.135	+/-0.304		pCi/g						
Thallium-208		0.0991	+/-0.105	0.0898	0.0402	+/-0.105		pCi/g						
Tin-126	U	-0.0741	+/-0.135	0.231	0.110	+/-0.140		pCi/g						

### Rad Gas Flow Proportional Counting

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

Alpha		6.47	+/-2.86	3.95	1.74	+/-3.12	4.00	pCi/g		KXB2	12/02/15	1456	1525769	3
Beta		16.4	+/-3.07	4.01	1.91	+/-3.91	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	LYT1	11/10/15	0955	1521927

### 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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### 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: 2.2.2.R.1  
Sample ID: 385101020

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

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## 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: 2.2.2.R.2  
Sample ID: 389296003  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 14-JAN-16  
Collector: Client  
Moisture: 20%

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		20.0						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	0.214	+/-0.303	0.510	0.235	+/-0.319		pCi/g	RXF2		02/05/16	0731	1537546	2
Antimony-125	UI	0.00	+/-0.0984	0.181	0.0805	+/-0.106		pCi/g						
Bismuth-212	UI	0.00	+/-0.718	1.36	0.620	+/-0.949		pCi/g						
Bismuth-214		0.642	+/-0.188	0.149	0.0667	+/-0.196		pCi/g						
Cesium-137		0.270	+/-0.0768	0.082	0.0366	+/-0.0801	0.100	pCi/g						
Cobalt-60	U	-0.0192	+/-0.0387	0.0705	0.0281	+/-0.0397		pCi/g						
Europium-154	U	-0.0138	+/-0.114	0.224	0.0928	+/-0.114		pCi/g						
Lead-212		0.525	+/-0.146	0.133	0.0621	+/-0.155		pCi/g						
Lead-214		0.716	+/-0.159	0.179	0.0827	+/-0.172		pCi/g						
Potassium-40		6.56	+/-1.14	0.680	0.270	+/-1.28		pCi/g						
Protactinium-231	U	0.389	+/-0.565	1.08	0.501	+/-0.598		pCi/g						
Radium-226		0.642	+/-0.188	0.149	0.0667	+/-0.196		pCi/g						
Radium-228		0.476	+/-0.291	0.308	0.135	+/-0.299		pCi/g						
Thallium-208		0.180	+/-0.0754	0.0667	0.0294	+/-0.0769		pCi/g						
Tin-126	UI	0.00	+/-0.102	0.0871	0.040	+/-0.103		pCi/g						
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	UI	0.00	+/-0.319	0.605	0.281	+/-0.361		pCi/g	RXF2		01/18/16	0953	1537545	3
Antimony-125	U	-0.0529	+/-0.114	0.198	0.0885	+/-0.116		pCi/g						
Bismuth-212	UI	0.00	+/-0.704	0.957	0.412	+/-0.709		pCi/g						
Bismuth-214		0.606	+/-0.170	0.147	0.065	+/-0.177		pCi/g						
Cesium-137		0.284	+/-0.0855	0.0875	0.0389	+/-0.0886	0.100	pCi/g						
Cobalt-60	U	-0.0103	+/-0.0529	0.101	0.0426	+/-0.0531		pCi/g						
Europium-154	U	0.0219	+/-0.126	0.264	0.110	+/-0.126		pCi/g						
Lead-212		0.779	+/-0.121	0.109	0.0499	+/-0.140		pCi/g						
Lead-214		0.524	+/-0.181	0.151	0.0684	+/-0.187		pCi/g						
Potassium-40		8.36	+/-1.35	0.761	0.303	+/-1.53		pCi/g						
Protactinium-231	U	0.351	+/-0.610	1.07	0.491	+/-0.635		pCi/g						
Radium-226		0.606	+/-0.170	0.147	0.065	+/-0.177		pCi/g						
Radium-228		0.543	+/-0.322	0.344	0.151	+/-0.333		pCi/g						
Thallium-208		0.282	+/-0.0686	0.0679	0.0296	+/-0.0725		pCi/g						
Tin-126	U	0.00946	+/-0.109	0.173	0.0819	+/-0.109		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		7.09	+/-2.89	3.90	1.73	+/-3.20	4.00	pCi/g	KXB2		01/26/16	1152	1539462	4
Beta		12.7	+/-2.32	2.74	1.28	+/-2.93	10.0	pCi/g						

# GEL LABORATORIES LLC

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## 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: 2.2.2.R.2  
Sample ID: 389296003

Report Date: February 10, 2016

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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### 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
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### Notes:

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

# GEL LABORATORIES LLC

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## 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: 2.2.3.R.1  
Sample ID: 385101021  
Matrix: Soil  
Collect Date: 26-OCT-15 14:00  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 36%

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		36.0				percent		LYT1	11/10/15	0953	1521928	1
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0949	+/-0.359	0.639		pCi/g		RXF2	12/03/15	0624	1522393	2
Antimony-125	U	0.0676	+/-0.130	0.241		pCi/g						
Cesium-137		2.15	+/-0.160	0.0822	0.100	pCi/g						
Cobalt-60	U	-0.00372	+/-0.0457	0.0869		pCi/g						
Europium-154	U	-0.0139	+/-0.131	0.241		pCi/g						
Protactinium-231	U	0.131	+/-0.777	1.18		pCi/g						
Radium-226		0.500	+/-0.152	0.170		pCi/g						
Radium-228		0.750	+/-0.261	0.286		pCi/g						
Tin-126	U	-0.0248	+/-0.157	0.200		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		10.2	+/-3.61	3.75	4.00	pCi/g		KXB2	12/02/15	1456	1525769	3
Beta		24.7	+/-4.05	4.19	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	LYT1	11/10/15	0953	1521928

### 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).

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## 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: 2.2.3.R.1  
Sample ID: 385101021  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 36%

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		36.0						percent		LYT1	11/10/15	0953	1521928	1
<b>Rad Gamma Spec Analysis</b>														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0949	+/-0.359	0.639	0.301	+/-0.362		pCi/g		RXF2	12/03/15	0624	1522393	2
Antimony-125	U	0.0676	+/-0.130	0.241	0.113	+/-0.134		pCi/g						
Bismuth-212	U	0.169	+/-0.666	1.25	0.576	+/-0.671		pCi/g						
Bismuth-214		0.500	+/-0.152	0.170	0.0784	+/-0.158		pCi/g						
Cesium-137		2.15	+/-0.160	0.0822	0.0374	+/-0.246	0.100	pCi/g						
Cobalt-60	U	-0.00372	+/-0.0457	0.0869	0.0378	+/-0.0458		pCi/g						
Europium-154	U	-0.0139	+/-0.131	0.241	0.105	+/-0.131		pCi/g						
Lead-212		0.686	+/-0.121	0.132	0.062	+/-0.132		pCi/g						
Lead-214		0.679	+/-0.193	0.191	0.0896	+/-0.200		pCi/g						
Potassium-40		7.19	+/-1.24	0.678	0.284	+/-1.39		pCi/g						
Protactinium-231	U	0.131	+/-0.777	1.18	0.556	+/-0.779		pCi/g						
Radium-226		0.500	+/-0.152	0.170	0.0784	+/-0.158		pCi/g						
Radium-228		0.750	+/-0.261	0.286	0.128	+/-0.272		pCi/g						
Thallium-208		0.211	+/-0.0916	0.0766	0.035	+/-0.0934		pCi/g						
Tin-126	U	-0.0248	+/-0.157	0.200	0.0957	+/-0.157		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A:B, solid "Dry Weight Corrected"</i>														
Alpha		10.2	+/-3.61	3.75	1.51	+/-4.13	4.00	pCi/g		KXB2	12/02/15	1456	1525769	3
Beta		24.7	+/-4.05	4.19	1.92	+/-5.32	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	LYT1	11/10/15	0953	1521928

### 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

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### 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: 2.2.3.R.1  
Sample ID: 385101021

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

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## 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: 2.2.3.R.2  
Sample ID: 389296004  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 14-JAN-16  
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		CXC1	01/14/16	1208	1537312	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0791	+/-0.421	0.771	0.355	+/-0.423		pCi/g		RXF2	02/05/16	0731	1537546	2
Antimony-125	U	0.0468	+/-0.179	0.338	0.153	+/-0.180		pCi/g						
Bismuth-212	U	0.259	+/-1.04	2.03	0.910	+/-1.04		pCi/g						
Bismuth-214		0.681	+/-0.270	0.238	0.106	+/-0.276		pCi/g						
Cesium-137		0.260	+/-0.0887	0.122	0.0532	+/-0.0912	0.100	pCi/g						
Cobalt-60	U	0.0248	+/-0.0722	0.153	0.0648	+/-0.0731		pCi/g						
Europium-154	U	0.00142	+/-0.178	0.362	0.149	+/-0.178		pCi/g						
Lead-212		0.834	+/-0.166	0.166	0.0766	+/-0.185		pCi/g						
Lead-214		0.736	+/-0.283	0.244	0.111	+/-0.289		pCi/g						
Potassium-40		5.11	+/-1.41	1.06	0.412	+/-1.48		pCi/g						
Protactinium-231	U	0.479	+/-0.837	1.54	0.709	+/-0.872		pCi/g						
Radium-226		0.681	+/-0.270	0.238	0.106	+/-0.276		pCi/g						
Radium-228		0.660	+/-0.397	0.365	0.150	+/-0.404		pCi/g						
Thallium-208		0.233	+/-0.101	0.107	0.0467	+/-0.102		pCi/g						
Tin-126	UI	0.00	+/-0.111	0.138	0.0646	+/-0.112		pCi/g						
<i>Gamma spec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0615	+/-0.326	0.601	0.278	+/-0.327		pCi/g		RXF2	01/18/16	0954	1537545	3
Antimony-125	U	0.0456	+/-0.136	0.258	0.118	+/-0.137		pCi/g						
Bismuth-212	U	0.562	+/-0.636	1.27	0.564	+/-0.687		pCi/g						
Bismuth-214		0.593	+/-0.181	0.164	0.0731	+/-0.189		pCi/g						
Cesium-137		0.315	+/-0.0868	0.0858	0.0378	+/-0.0914	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0484	0.117	0.0505	+/-0.0545		pCi/g						
Europium-154	U	-0.0481	+/-0.119	0.225	0.0904	+/-0.121		pCi/g						
Lead-212		0.698	+/-0.135	0.129	0.0598	+/-0.149		pCi/g						
Lead-214		0.750	+/-0.195	0.363	0.174	+/-0.206		pCi/g						
Potassium-40		5.15	+/-1.09	1.18	0.511	+/-1.17		pCi/g						
Protactinium-231	UI	0.00	+/-0.887	1.10	0.502	+/-0.916		pCi/g						
Radium-226		0.593	+/-0.181	0.164	0.0731	+/-0.189		pCi/g						
Radium-228		0.837	+/-0.265	0.298	0.127	+/-0.290		pCi/g						
Thallium-208		0.259	+/-0.0792	0.086	0.0384	+/-0.0824		pCi/g						
Tin-126	UI	0.00	+/-0.152	0.204	0.0965	+/-0.154		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		6.74	+/-2.93	3.90	1.69	+/-3.20	4.00	pCi/g		KXB2	01/26/16	1152	1539462	4
Beta		8.37	+/-2.24	2.85	1.33	+/-2.63	10.0	pCi/g						

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## 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: 2.2.3.R.2  
Sample ID: 389296004

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPC	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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### 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/SWS46 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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### Notes:

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

# GEL LABORATORIES LLC

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## 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: 2.2.4.R.1  
Sample ID: 385101022  
Matrix: Soil  
Collect Date: 26-OCT-15 14:40  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 37%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
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### Gravimetric Solids

#### ASTM D 2216, % Moisture "As Received"

Moisture		37.0				percent	LYT1	11/10/15	0953	1521928		1
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### Rad Gamma Spec Analysis

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

Actinium-227	U	-0.0123	+/-0.399	0.725		pCi/g	RXF2	12/03/15	0709	1522393		2
Antimony-125	U	0.00774	+/-0.175	0.311		pCi/g						
Cesium-137		1.78	+/-0.189	0.0927	0.100	pCi/g						
Cobalt-60	U	-0.024	+/-0.0539	0.0971		pCi/g						
Europium-154	U	0.111	+/-0.134	0.316		pCi/g						
Protactinium-231	U	0.0951	+/-0.713	1.31		pCi/g						
Radium-226		0.772	+/-0.207	0.172		pCi/g						
Radium-228	U	0.489	+/-0.354	0.610		pCi/g						
Tin-126	U	0.113	+/-0.148	0.211		pCi/g						

### Rad Gas Flow Proportional Counting

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

Alpha		12.8	+/-3.89	3.96	4.00	pCi/g	KXB2	12/02/15	1456	1525769		3
Beta		28.2	+/-4.34	4.84	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	LYT1	11/10/15	0953	1521928

#### 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

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## 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: 2.2.4.R.1  
Sample ID: 385101022  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 37%

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		37.0						percent		LYT1	11/10/15 0953	1521928	1
<b>Rad Gamma Spec Analysis</b>													
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>													
Actinium-227	U	0.0123	+/-0.399	0.725	0.338	+/-0.399		pCi/g		RXF2	12/03/15 0709	1522393	2
Antimony-125	U	0.00774	+/-0.175	0.311	0.144	+/-0.175		pCi/g					
Bismuth-212	UI	0.00	+/-0.708	1.41	0.626	+/-0.785		pCi/g					
Bismuth-214		0.772	+/-0.207	0.172	0.0761	+/-0.218		pCi/g					
Cesium-137		1.78	+/-0.189	0.0927	0.0407	+/-0.247	0.100	pCi/g					
Cobalt-60	U	-0.024	+/-0.0539	0.0971	0.0396	+/-0.055		pCi/g					
Europium-154	U	0.111	+/-0.134	0.316	0.134	+/-0.144		pCi/g					
Lead-212		0.758	+/-0.139	0.148	0.0686	+/-0.154		pCi/g					
Lead-214		0.959	+/-0.212	0.407	0.195	+/-0.228		pCi/g					
Potassium-40		9.68	+/-1.62	1.23	0.526	+/-1.82		pCi/g					
Protactinium-231	U	0.0951	+/-0.713	1.31	0.607	+/-0.715		pCi/g					
Radium-226		0.772	+/-0.207	0.172	0.0761	+/-0.218		pCi/g					
Radium-228	UI	0.00	+/-0.354	0.610	0.281	+/-0.423		pCi/g					
Thallium-208		0.183	+/-0.0754	0.0902	0.040	+/-0.0771		pCi/g					
Tin-126	UI	0.00	+/-0.148	0.211	0.0997	+/-0.149		pCi/g					

### Rad Gas Flow Proportional Counting

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

Alpha	12.8	+/-3.89	3.96	1.64	+/-4.66	4.00	pCi/g	KXB2	12/02/15 1456	1525769	3
Beta	28.2	+/-4.34	4.84	2.26	+/-5.99	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	LYT1	11/10/15	0953	1521928

### 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: 2,2,4,R,1  
Sample ID: 385101022

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  
Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Report Date: February 10, 2016

Client Sample ID: 2.2.4.R.2  
Sample ID: 389296005  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 14-JAN-16  
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	01/14/16	1208	1537312	1	
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.0603	+/-0.333	0.559	0.258	+/-0.334		pCi/g	RXF2	02/05/16	0732	1537546	2	
Antimony-125	U	0.0634	+/-0.144	0.245	0.111	+/-0.147		pCi/g						
Bismuth-212	U	0.212	+/-0.727	1.39	0.626	+/-0.733		pCi/g						
Bismuth-214		0.645	+/-0.203	0.177	0.0799	+/-0.211		pCi/g						
Cesium-137		0.193	+/-0.0635	0.0685	0.0292	+/-0.0658	0.100	pCi/g						
Cobalt-60	U	0.0269	+/-0.0453	0.105	0.0438	+/-0.0469		pCi/g						
Europium-154	U	-0.0258	+/-0.168	0.324	0.139	+/-0.168		pCi/g						
Lead-212		0.590	+/-0.134	0.138	0.0646	+/-0.144		pCi/g						
Lead-214		0.962	+/-0.178	0.152	0.0684	+/-0.198		pCi/g						
Potassium-40		7.90	+/-1.52	1.23	0.529	+/-1.66		pCi/g						
Protactinium-231	U	0.00	+/-0.905	0.864	0.388	+/-0.916		pCi/g						
Radium-226		0.645	+/-0.203	0.177	0.0799	+/-0.211		pCi/g						
Radium-228		0.746	+/-0.309	0.282	0.119	+/-0.331		pCi/g						
Thallium-208		0.221	+/-0.103	0.0691	0.030	+/-0.104		pCi/g						
Tin-126	U	0.0605	+/-0.109	0.150	0.0697	+/-0.110		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0338	+/-0.315	0.580	0.267	+/-0.315		pCi/g	RXF2	01/18/16	0954	1537545	3	
Antimony-125	U	0.00	+/-0.136	0.276	0.127	+/-0.151		pCi/g						
Bismuth-212	U	0.00	+/-0.601	1.43	0.643	+/-0.838		pCi/g						
Bismuth-214		0.626	+/-0.177	0.153	0.0676	+/-0.185		pCi/g						
Cesium-137		0.129	+/-0.0832	0.0962	0.043	+/-0.084	0.100	pCi/g						
Cobalt-60	U	0.0153	+/-0.043	0.0949	0.0392	+/-0.0436		pCi/g						
Europium-154	U	-0.0338	+/-0.146	0.277	0.116	+/-0.147		pCi/g						
Lead-212		0.659	+/-0.122	0.118	0.0544	+/-0.135		pCi/g						
Lead-214		0.802	+/-0.215	0.362	0.173	+/-0.226		pCi/g						
Potassium-40		8.33	+/-1.71	0.923	0.380	+/-1.85		pCi/g						
Protactinium-231	U	0.00	+/-0.631	1.17	0.540	+/-0.667		pCi/g						
Radium-226		0.626	+/-0.177	0.153	0.0676	+/-0.185		pCi/g						
Radium-228		0.693	+/-0.269	0.397	0.177	+/-0.289		pCi/g						
Thallium-208		0.134	+/-0.0842	0.0817	0.0362	+/-0.0851		pCi/g						
Tin-126	U	0.00	+/-0.114	0.157	0.0735	+/-0.115		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		10.2	+/-3.10	3.93	1.77	+/-3.68	4.00	pCi/g	KXB2	01/26/16	1152	1539462	4	
Beta		15.7	+/-2.85	3.69	1.76	+/-3.74	10.0	pCi/g						

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## 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: 2.2.4.R.2  
Sample ID: 389296005

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.
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### 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
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### Notes:

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

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## 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: 2.2.4.R.3  
Sample ID: 388092005  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 23-DEC-15  
Collector: Client  
Moisture: 12%

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		12.0						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		0.0565	+/-0.0787	0.117	0.0349	+/-0.0791	1.00	pCi/g		MXS2	01/12/16	1021	1534070	2
Plutonium-239/240	U	-0.0456	+/-0.0411	0.146	0.0493	+/-0.0411	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.00384	+/-0.0331	0.0767	0.0144	+/-0.0332	1.00	pCi/g		MXS2	01/12/16	1015	1534063	3
Uranium-233/234		0.649	+/-0.201	0.102	0.0277	+/-0.229	1.00	pCi/g						
Uranium-235/236		0.070	+/-0.0754	0.0857	0.0196	+/-0.0763	1.00	pCi/g						
Uranium-238		0.788	+/-0.221	0.102	0.0277	+/-0.258	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237		0.0735	+/-0.207	0.221	0.00	+/-0.207	1.00	pCi/g		MXS2	01/12/16	1032	1534069	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.55	+/-0.766	0.515	0.123	+/-0.843	1.00	pCi/g		MXS2	01/12/16	1031	1534062	5
Thorium-229	U	0.0631	+/-0.237	0.398	0.0745	+/-0.237	1.00	pCi/g						
Thorium-230		1.82	+/-0.780	0.249	0.00	+/-0.878	1.00	pCi/g						
Thorium-232		0.806	+/-0.540	0.396	0.0741	+/-0.569	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	0.00897	+/-0.0498	0.0955	0.0219	+/-0.0499	1.00	pCi/g		MXS2	01/12/16	1103	1534067	6
Curium-242	U	-0.00569	+/-0.0491	0.114	0.0213	+/-0.0492	1.00	pCi/g						
Curium-243/244	U	0.0089	+/-0.0495	0.0948	0.0217	+/-0.0495	1.00	pCi/g						
Curium-245/246		0.0395	+/-0.0676	0.0592	0.00	+/-0.0678	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-3.91	+/-7.38	12.9	6.29	+/-7.38	15.0	pCi/g		MXS2	01/14/16	1607	1534073	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.273	+/-0.542	0.955	0.396	+/-0.557	1.00	pCi/g		MJH1	01/15/16	0848	1535059	8
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0649	+/-0.161	0.303	0.144	+/-0.164		pCi/g		MJH1	12/29/15	1155	1533562	9
Antimony-125	U	-0.00906	+/-0.0536	0.102	0.0473	+/-0.0538		pCi/g						
Bismuth-212		0.617	+/-0.516	0.594	0.275	+/-0.520		pCi/g						
Bismuth-214		0.657	+/-0.116	0.0768	0.0356	+/-0.129		pCi/g						
Cesium-137	U	-0.0218	+/-0.0241	0.0404	0.0186	+/-0.0261	0.100	pCi/g						
Cobalt-60	U	0.00385	+/-0.0236	0.0468	0.0209	+/-0.0237		pCi/g						
Europium-154	U	-0.0417	+/-0.0732	0.132	0.0593	+/-0.0756		pCi/g						
Lead-212		0.970	+/-0.0853	0.0668	0.0319	+/-0.120		pCi/g						
Lead-214		0.889	+/-0.117	0.0807	0.0379	+/-0.139		pCi/g						

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## 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: 2.2.4.R.3  
Sample ID: 388092005

Report Date: January 20, 2016

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		13.2	+/-0.999	0.374	0.162	+/-1.51		pCi/g						
Protactinium-231	U	0.00	+/-0.487	0.546	0.259	+/-0.546		pCi/g						
Radium-226		0.657	+/-0.116	0.0768	0.0356	+/-0.129		pCi/g						
Radium-228		0.857	+/-0.203	0.132	0.059	+/-0.240		pCi/g						
Thallium-208		0.220	+/-0.0626	0.0385	0.0178	+/-0.0653		pCi/g						
Tm-126	U	0.0345	+/-0.075	0.0923	0.0444	+/-0.0763		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		12.5	+/-2.01	2.29	1.07	+/-3.11	4.00	pCi/g		JXB7	01/11/16	1839	1534760	10
Beta		18.4	+/-1.34	1.40	0.674	+/-2.88	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.694	+/-0.750	1.61	0.714	+/-0.751	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	0.450	+/-2.12	3.66	1.77	+/-2.12	6.00	pCi/g		TXJ1	01/10/16	1830	1534918	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.613	+/-0.698	1.21	0.595	+/-0.698	2.00	pCi/g		TXJ1	01/16/16	0926	1534935	13
<i>Liquid Scint Te99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.299	+/-1.69	2.94	1.41	+/-1.69	5.00	pCi/g		MYM	01/19/16	0609	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 EERF C-01 Modified

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## Certificate of Analysis

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

Report Date: January 20, 2016

Client Sample ID: 2.2.4.R.3  
Sample ID: 388092005

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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	70.3	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	72.6	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	90.3	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1534069	94.3	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1534062	77.6	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1534067	64.4	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1534073	70.3	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534788	70.7	(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).

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## 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: 2.2.4.R.3  
Sample ID: 388092015  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 23-DEC-15  
Collector: Client  
Moisture: 12%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RI	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
GammaSpec, Gamma, Solid "Dry Weight Corrected"														
Actinium-227	U	0.0228	+/-0.252	0.476	0.223	+/-0.252		pCi/g		MJH	01/18/16	0722	1534020	1
Antimony-125	UI	0.00	+/-0.118	0.178	0.0817	+/-0.132		pCi/g						
Bismuth-212	UI	0.00	+/-1.15	0.632	0.272	+/-1.15		pCi/g						
Bismuth-214		0.849	+/-0.167	0.119	0.0537	+/-0.182		pCi/g						
Cesium-137	UI	0.00	+/-0.0445	0.0649	0.0292	+/-0.0448	0.100	pCi/g						
Cobalt-60	U	0.00185	+/-0.0278	0.059	0.0245	+/-0.0278		pCi/g						
Europium-154	U	-0.0435	+/-0.0987	0.185	0.079	+/-0.101		pCi/g						
Lead-212		0.940	+/-0.116	0.0973	0.0456	+/-0.142		pCi/g						
Lead-214		1.04	+/-0.179	0.112	0.0512	+/-0.200		pCi/g						
Potassium-40		11.5	+/-1.26	0.474	0.187	+/-1.59		pCi/g						
Protactinium-231	U	0.0562	+/-0.453	0.766	0.354	+/-0.454		pCi/g						
Radium-226		0.849	+/-0.167	0.119	0.0537	+/-0.182		pCi/g						
Radium-228		0.818	+/-0.226	0.206	0.0897	+/-0.256		pCi/g						
Thallium-208		0.238	+/-0.0753	0.0674	0.0308	+/-0.0779		pCi/g						
Tin-126	UI	0.00	+/-0.158	0.128	0.0602	+/-0.159		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	LYT	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
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## GEL LABORATORIES LLC

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### 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: 2.2.4.R.3  
Sample ID: 388092015

Report Date: January 20, 2016

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

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## 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: 2.2.4.R.5  
Sample ID: 385101023  
Matrix: Soil  
Collect Date: 26-OCT-15 15:15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 8.76%

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Gravimetric Solids</b>												
ASTM D 2216 % Moisture "As Received"												
Moisture		8.76				percent		LYT1	11/10/15	0953	1521928	1
<b>Rad Alpha Spec Analysis</b>												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	0.000737	+/-0.0546	0.121	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240	U	-0.00737	+/-0.0688	0.160	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	0.0156	+/-0.073	0.143	1.00	pc/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.826	+/-0.246	0.126	1.00	pc/g						
Uranium-235/236	U	0.0817	+/-0.0881	0.100	1.00	pc/g						
Uranium-238		0.739	+/-0.229	0.0541	1.00	pc/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	0.00	+/-0.126	0.187	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		1.00	+/-0.530	0.472	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.127	+/-0.197	0.568	1.00	pCi/g						
Thorium-230		0.809	+/-0.457	0.331	1.00	pCi/g						
Thorium-232		0.568	+/-0.391	0.330	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241	U	-0.00743	+/-0.0329	0.0857	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242	U	-0.00415	+/-0.0358	0.0829	1.00	pCi/g						
Curium-243/244	U	-0.011	+/-0.0333	0.0935	1.00	pCi/g						
Curium-245/246	U	0.0177	+/-0.0498	0.0531	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	2.00	+/-6.47	11.1	15.0	pCi/g		HAKB	11/25/15	2245	1522578	7
<b>Rad Gamma Spec Analysis</b>												
Gamma 1129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.07	+/-0.209	0.369	1.00	pCi/g		MJH1	12/02/15	1938	1522374	8
Gamma spec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.151	+/-0.262	0.527		pCi/g		RXF2	12/03/15	0713	1522393	9
Antimony-125	U	-0.0477	+/-0.104	0.191		pCi/g						
Cesium-137	U	-0.000548	+/-0.0432	0.0809	0.100	pCi/g						
Cobalt-60	U	0.0353	+/-0.040	0.0892		pCi/g						
Europium-154	U	0.0266	+/-0.123	0.246		pCi/g						
Protactinium-231	U	0.443	+/-0.598	1.07		pCi/g						

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## 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: 2.2.4.R.5  
Sample ID: 385101023

Project: MJWC00115  
Client ID: MJWC001

### Rad Gamma Spec Analysis

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

Radium-226	0.951	+/-0.169	0.134	pCi/g
Radium-228	0.746	+/-0.335	0.301	pCi/g
Th-232	0.117	+/-0.155	0.223	pCi/g

### Rad Gas Flow Proportional Counting

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

Alpha	10.1	+/-3.62	3.86	4.00	pCi/g	KXB2	12/02/15	1456	1525769	10
Beta	16.8	+/-2.71	2.70	10.0	pCi/g					

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

Strontium-90	U	0.969	+/-0.765	1.20	2.00	pCi/g	KSD1	12/03/15	1156	1525755	11
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### Rad Liquid Scintillation Analysis

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

Tritium	U	-0.0109	+/-1.44	2.78	6.00	pCi/g	TXJ1	12/02/15	2342	1522724	12
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#### Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.816	+/-0.731	1.28	2.00	pCi/g	TXJ1	12/04/15	0745	1522716	13
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#### Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	0.926	+/-1.42	2.41	5.00	pCi/g	MYM1	11/29/15	1602	1522715	14
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### The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/10/15	0953	1521928

# GEL LABORATORIES LLC

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## 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: 2.2.4.R.5

Project: MJWC00115

Sample ID: 385101023

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"			77.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			79.1	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			82.7	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			98.6	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			87.8	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			93.9	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			77.4	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			87.8	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"			97.1	(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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

Client Sample ID: 2.2.4.R.5  
Sample ID: 385101023  
Matrix: Soil  
Collect Date: 26-OCT-15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 8.76%

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		8.76						percent		LYT1	11/10/15	0953	1521928	1
<b>Rad Alpha Spec Analysis</b>														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	0.000737	+/-0.0546	0.121	0.0331	+/-0.0547	1.00	pCi/g		HAKB	11/23/15	1502	1522577	2
Plutonium-239/240	U	-0.00737	+/-0.0688	0.160	0.0523	+/-0.0689	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0156	+/-0.073	0.143	0.0521	+/-0.073	1.00	pcv/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.826	+/-0.246	0.126	0.0362	+/-0.291	1.00	pcv/g						
Uranium-235/236		0.0817	+/-0.0881	0.100	0.0229	+/-0.0894	1.00	pcv/g						
Uranium-238		0.739	+/-0.229	0.0541	0.00	+/-0.269	1.00	pcv/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237		0.00	+/-0.126	0.187	0.00	+/-0.126	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.00	+/-0.530	0.472	0.144	+/-0.553	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.127	+/-0.197	0.568	0.194	+/-0.197	1.00	pCi/g						
Thorium-230		0.809	+/-0.457	0.331	0.0759	+/-0.473	1.00	pCi/g						
Thorium-232		0.568	+/-0.391	0.330	0.0757	+/-0.400	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.00743	+/-0.0329	0.0857	0.0196	+/-0.0329	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242	U	-0.00415	+/-0.0358	0.0829	0.0155	+/-0.0359	1.00	pCi/g						
Curium-243/244	U	-0.011	+/-0.0333	0.0935	0.0238	+/-0.0333	1.00	pCi/g						
Curium-245/246		0.0177	+/-0.0498	0.0531	0.00	+/-0.0499	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	2.00	+/-6.47	11.1	5.38	+/-6.48	15.0	pCi/g		HAKB	11/25/15	2245	1522578	7
<b>Rad Gamma Spec Analysis</b>														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.07	+/-0.209	0.369	0.160	+/-0.211	1.00	pCi/g		MJH1	12/02/15	1938	1522374	8
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.151	+/-0.262	0.527	0.248	+/-0.271		pCi/g		RXF2	12/03/15	0713	1522393	9
Antimony-125	U	-0.0477	+/-0.104	0.191	0.0878	+/-0.107		pCi/g						
Bismuth-212	UI	0.00	+/-0.967	1.32	0.613	+/-1.12		pCi/g						
Bismuth-214		0.951	+/-0.169	0.134	0.0606	+/-0.187		pCi/g						
Cesium-137	U	-0.000548	+/-0.0432	0.0809	0.0369	+/-0.0432	0.100	pCi/g						
Cobalt-60	U	0.0353	+/-0.040	0.0892	0.0392	+/-0.0431		pCi/g						
Europium-154	U	0.0266	+/-0.123	0.246	0.109	+/-0.123		pCi/g						
Lead-212		1.21	+/-0.144	0.118	0.0558	+/-0.172		pCi/g						
Lead-214		1.16	+/-0.218	0.350	0.170	+/-0.236		pCi/g						

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## 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: 2.2.4.R.5  
Sample ID: 385101023

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		14.6	+/-1.55	0.634	0.264	+/-2.02		pCi/g						
Protactinium-231	U	0.443	+/-0.598	1.07	0.506	+/-0.638		pCi/g						
Radium-226		0.951	+/-0.169	0.134	0.0606	+/-0.187		pCi/g						
Radium-228		0.746	+/-0.335	0.301	0.135	+/-0.349		pCi/g						
Thallium-208		0.310	+/-0.0673	0.0721	0.0328	+/-0.0722		pCi/g						
Tin-126	UI	0.00	+/-0.155	0.223	0.107	+/-0.156		pCi/g						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		10.1	+/-3.62	3.86	1.56	+/-4.10	4.00	pCi/g		KXB2	12/02/15	1456	1525769	10
Beta		16.8	+/-2.71	2.70	1.24	+/-3.64	10.0	pCi/g						
<i>GFPC, Sr-90, solid "Dry Weight Corrected"</i>														
Strontium-90		0.969	+/-0.765	1.20	0.520	+/-0.784	2.00	pCi/g		KSD1	12/03/15	1156	1525755	11
<b>Rad Liquid Scintillation Analysis</b>														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	-0.0109	+/-1.44	2.78	1.21	+/-1.44	6.00	pCi/g		TXJ1	12/02/15	2342	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.816	+/-0.731	1.28	0.628	+/-0.731	2.00	pCi/g		TXJ1	12/04/15	0745	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.926	+/-1.42	2.41	1.16	+/-1.43	5.00	pCi/g		MYM	11/29/15	1602	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	LVT1	11/10/15	0953	1521928

### 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

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## 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: 2.2.4.R.5  
Sample ID: 385101023

Project: MJWC00115  
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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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	77.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	79.1	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	82.7	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	98.6	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1522579	87.8	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	93.9	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	77.4	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	87.8	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	97.1	(15%-125%)

### Notes:

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

# GEL LABORATORIES LLC

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## 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: 2.2.4.R.6  
Sample ID: 385101024  
Matrix: Water  
Collect Date: 26-OCT-15 16:00  
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	5.75	+/-21.6	39.9		pCi/L		MJH1	11/17/15	0713	1521915	1
Antimony-125	U	-1.34	+/-7.62	13.5		pCi/L						
Cesium-137	U	-0.132	+/-4.62	6.86	10.0	pCi/L						
Cobalt-60	U	0.627	+/-3.45	6.54		pCi/L						
Europium-154	U	6.59	+/-8.59	17.9		pCi/L						
Protactinium-231	U	-32.4	+/-42.5	72.8		pCi/L						
Radium-228	U	9.08	+/-17.9	23.5		pCi/L						
Tin-126	U	-7.04	+/-6.23	10.2		pCi/L						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, liquid "As Received"												
Alpha	U	-2.05	+/-1.38	4.22	5.00	pCi/L		JXB7	12/02/15	1328	1525771	2
Beta	U	0.321	+/-2.34	4.33	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

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## 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: 2.2.4.R.6  
Sample ID: 385101024  
Matrix: Water  
Collect Date: 26-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.
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### Rad Gamma Spec Analysis

#### *GammaSpec, Gamma, Liquid (Standard List) "As Received"*

Actinium-227	U	5.75	+/-21.6	39.9	18.9	+/-21.8		pCi/L		MJH1	11/17/15	0713	1521915	1
Antimony-125	U	-1.34	+/-7.62	13.5	6.26	+/-7.64		pCi/L						
Bismuth-212	U	22.7	+/-51.3	81.1	37.3	+/-52.3		pCi/L						
Bismuth-214	UI	0.00	+/-11.0	12.3	5.75	+/-11.0		pCi/L						
Cesium-137	U	-0.132	+/-4.62	6.86	3.19	+/-4.62	10.0	pCi/L						
Cobalt-60	U	0.627	+/-3.45	6.54	2.91	+/-3.46		pCi/L						
Europium-154	U	6.59	+/-8.59	17.9	7.96	+/-9.11		pCi/L						
Lead-212	U	0.798	+/-9.20	11.2	5.36	+/-9.21		pCi/L						
Lead-214	U	1.78	+/-8.94	13.1	6.19	+/-8.98		pCi/L						
Potassium-40	U	-3.41	+/-47.0	83.7	38.3	+/-47.0		pCi/L						
Protactinium-231	U	-32.4	+/-42.5	72.8	34.3	+/-45.5		pCi/L						
Radium-228	U	9.08	+/-17.9	23.5	10.8	+/-18.4		pCi/L						
Thallium-208	U	-1.87	+/-4.27	6.52	3.04	+/-4.36		pCi/L						
Tin-126	U	-7.04	+/-6.23	10.2	4.85	+/-7.02		pCi/L						

### Rad Gas Flow Proportional Counting

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

Alpha	U	-2.05	+/-1.38	4.22	1.69	+/-1.38	5.00	pCi/L		JXB7	12/02/15	1328	1525771	2
Beta	U	0.321	+/-2.34	4.33	1.92	+/-2.34	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
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### Notes:

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