

# 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.1	Project: MJWC00115
Sample ID: 385101018	Client ID: MJWC001
Matrix: Soil	
Collect Date: 26-OCT-15 10:15	
Receive Date: 05-NOV-15	
Collector: Client	
Moisture: 29.9%	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Gravimetric Solids</b>												
ASTM D 2216 % Moisture "As Received"												
Moisture		29.9				percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>												
Gammascpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0818	+/-0.296	0.517		pCi/g		RXF2	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						
<b>Rad Gas Flow Proportional Counting</b>												
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).

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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.I.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	Lc	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		LYTI	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammasec, 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	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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## Certificate of Analysis

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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

Project: MJWC00115  
Client ID: MJWC001

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

### Notes:

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

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## Certificate of Analysis

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

Report Date: February 10, 2016

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

Client Sample ID: 2.2.1.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	Lo	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<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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Suite 112  
Buffalo, New York 14228  
Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes  
Client Sample ID: 2.2.1.R.2  
Sample ID: 389296002

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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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	Project: MJWC00115
Sample ID: 385101019	Client ID: MJWC001
Matrix: Soil	
Collect Date: 26-OCT-15 10:20	
Receive Date: 05-NOV-15	
Collector: Client	
Moisture: 31%	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Gravimetric Solids</b>												
<b>ASTM D 2216 % Moisture "As Received"</b>												
Moisture		31.0				percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Alpha Spec Analysis</b>												
<b>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</b>												
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						
<b>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</b>												
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						
<b>Alphaspec Np237, Solid "Dry Weight Corrected"</b>												
Neptunium-237	U	0.0856	+/-0.330	0.640	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
<b>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</b>												
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						
<b>Am241, Cm Solid "Dry Weight Corrected"</b>												
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						
<b>Liquid Scint Pu241, Solid "Dry Weight Corrected"</b>												
Plutonium-241	U	1.35	+/-6.31	10.8	15.0	pCi/g		HAKB	11/25/15	2144	1522578	7
<b>Rad Gamma Spec Analysis</b>												
<b>Gamma I129, Solid "Dry Weight Corrected"</b>												
Iodine-129	U	-0.342	+/-0.303	0.443	1.00	pCi/g		MJH1	12/02/15	1814	1522374	8
<b>Gammaspect, Gamma, Solid "Dry Weight Corrected"</b>												
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						

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

Client Sample ID: 2.2.1.R.5	Project: MJWC00115
Sample ID: 385101019	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-126	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, Sr90, solid "Dry Weight Corrected"

Strontium-90	U	1.59	+/-1.12	1.78	2.00	pCi/g	KSD1	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 Tc99, 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

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Suite 112  
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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 RPS01 Rev 1 Modified	
12	EPA 906 0 Modified	
13	EPA EPERF 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).



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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	TPU	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>Gammaspect, 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	Mid.
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, 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  
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	Lo	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	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 Project: MJWC00115  
Sample ID: 385101020 Client ID: MJWC001  
Matrix: Soil  
Collect Date: 26-OCT-15 11:15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 26.6%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Gravimetric Solids</b>												
ASTM D 2216 % Moisture "As Received"												
Moisture		26.6				percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>												
Gammascpec, 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						
<b>Rad Gas Flow Proportional Counting</b>												
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-02I	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.
<b>Gravimetric Solids</b>														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		26.6						percent		LYT1	11/10/15	0955	1521927	1
<b>Rad Gamma Spec Analysis</b>														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
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						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A B, solid "Dry Weight Corrected"</i>														
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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

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

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%

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.
<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>GammaSpec, 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>GF/PC, 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	Lo	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

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: 2.2.3.R.1	Project: MJWC00115
Sample ID: 385101021	Client ID: MJWC001
Matrix: Soil	
Collect Date: 26-OCT-15 14:00	
Receive Date: 05-NOV-15	
Collector: Client	
Moisture: 36%	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Gravimetric Solids</b>												
ASTM D 2216 % Moisture "As Received"												
Moisture		36.0				percent		LYT1	11/10/15	0953	1521928	1
<b>Rad Gamma Spec Analysis</b>												
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						
<b>Rad Gas Flow Proportional Counting</b>												
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).

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

Project: MJWC00115  
 Client ID: MJWC001

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

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

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

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						

### Rad Gas Flow Proportional Counting

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

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
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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

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

Report Date: February 10, 2016

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

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

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).

# 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 Project: MJWC00115  
Sample ID: 385101022 Client ID: MJWC001  
Matrix: Soil  
Collect Date: 26-OCT-15 14:40  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 37%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		37.0				percent		LYT1	11/10/15	0953	1521928	1
Rad Gamma Spec Analysis												
Gammascpec, 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

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.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						
<b>Rad Gas Flow Proportional Counting</b>														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
Project: Soil Radioisotopes

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

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%

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.
<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	UI	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>Gamma spec, 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	UI	0.00	+/-0.136	0.276	0.127	+/-0.151		pCi/g						
Bismuth-212	UI	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	UI	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	UI	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						

# 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: 2.2.4.R.2  
Sample ID: 389296005

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

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

Report Date: January 20, 2016

Contact: Ms. Laurie Loscy  
 Project: Soil Radioisotopes

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	Le	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		LYTI	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 I129, 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>Gammasespec, 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						

# 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: 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	1859	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 Tc99, 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 EIERF 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: 2.2.4.R.3  
Sample ID: 388092005

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.
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

Report Date: January 20, 2016

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

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.
<b>Rad Gamma Spec Analysis</b>														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
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	LYT1	12/24/15	0703	1533924

**The following Analytical Methods were performed**

Method	Description
1	DOE HASL 300.4 5.2 3/Ga-01-R

Surrogate/Tracer	Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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## 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: 2.2.4.R.3  
Sample ID: 388092015

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

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  
Matrix: Soil  
Collect Date: 26-OCT-15 15:15  
Receive Date: 05-NOV-15  
Collector: Client  
Moisture: 8.76%

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	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.826	+/-0.246	0.126	1.00	pCi/g						
Uranium-235/236	U	0.0817	+/-0.0881	0.100	1.00	pCi/g						
Uranium-238		0.739	+/-0.229	0.0541	1.00	pCi/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 I129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.07	+/-0.209	0.369	1.00	pCi/g		MJH1	12/02/15	1938	1522374	8
Gammaspect, 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 Project: MJWC00115  
Sample ID: 385101023 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-126	U	+/-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

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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

### 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 Te99, Solid "Dry Weight Corrected"			97.1	(15%-125%)

### Notes:

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

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

Project: MJWC00115  
 Client ID: MJWC001

Client Sample ID: 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%

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	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.826	+/-0.246	0.126	0.0362	+/-0.291	1.00	pci/g						
Uranium-235/236		0.0817	+/-0.0881	0.100	0.0229	+/-0.0894	1.00	pci/g						
Uranium-238		0.739	+/-0.229	0.0541	0.00	+/-0.269	1.00	pci/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	1.1	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>GammaSpec, 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						

# 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: 2.2.4.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>Gammascpec, 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	LYT1	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-300.1-01 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

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 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.
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 Project: MJWC00115  
Sample ID: 385101024 Client ID: MJWC001  
Matrix: Water  
Collect Date: 26-OCT-15 16:00  
Receive Date: 05-NOV-15  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Gamma Spec Analysis</b>												
<b>Gammascpec, Gamma, Liquid (Standard List) "As Received"</b>												
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						
<b>Rad Gas Flow Proportional Counting</b>												
<b>GFPC, Gross A/B, liquid "As Received"</b>												
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

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

## Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey  
 Project: Soil Radioisotopes

Project: MJWC00115  
 Client ID: MJWC001

Client Sample ID: 2.2.4.R.6  
 Sample ID: 385101024  
 Matrix: Water  
 Collect Date: 26-OCT-15  
 Receive Date: 05-NOV-15  
 Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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### Rad Gamma Spec Analysis

*Gammasec. 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

### Notes:

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