

Appendix G-
Sub-Area 3.1.2- 3.1.10- COA

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

Company : MJW Corporation
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: 3.1.2.E.1
Sample ID: 385077008
Matrix: Soil
Collect Date: 20-OCT-15 10:45
Receive Date: 05-NOV-15
Collector: Client
Moisture: 23.4%

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		23.4				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.191	+/-0.425	0.725		pCi/g		RXF2	12/03/15	1110	1522384	2
Antimony-125	U	-0.0535	+/-0.173	0.313		pCi/g						
Cesium-137		1.29	+/-0.178	0.140	0.100	pCi/g						
Cobalt-60	U	0.0116	+/-0.0694	0.148		pCi/g						
Europium-154	U	0.0344	+/-0.189	0.399		pCi/g						
Protactinium-231	U	0.740	+/-1.31	1.36		pCi/g						
Radium-226		0.908	+/-0.289	0.232		pCi/g						
Radium-228		1.13	+/-0.469	0.550		pCi/g						
Tin-126	U	0.0958	+/-0.170	0.240		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		17.0	+/-2.33	2.32	4.00	pCi/g		KXB2	12/01/15	1954	1525765	3
Beta		28.1	+/-1.79	1.65	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.2.E.1
Sample ID: 385077008
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-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.
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Gravimetric Solids

ASTM D 2216 % Moisture "As Received"

Moisture		23.4						percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

GammaSpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.191	+/-0.425	0.725	0.336	+/-0.434		pCi/g		RXF2	12/03/15	1110	1522384	2
Antimony-125	U	-0.0535	+/-0.173	0.313	0.143	+/-0.174		pCi/g						
Bismuth-212	UI	0.00	+/-1.19	2.54	1.18	+/-2.07		pCi/g						
Bismuth-214		0.908	+/-0.289	0.232	0.104	+/-0.298		pCi/g						
Cesium-137		1.29	+/-0.178	0.140	0.0633	+/-0.206	0.100	pCi/g						
Cobalt-60	U	0.0116	+/-0.0694	0.148	0.0623	+/-0.0696		pCi/g						
Europium-154	U	0.0344	+/-0.189	0.399	0.168	+/-0.190		pCi/g						
Lead-212		1.21	+/-0.190	0.188	0.0887	+/-0.215		pCi/g						
Lead-214		1.18	+/-0.257	0.481	0.231	+/-0.275		pCi/g						
Potassium-40		17.0	+/-2.32	1.01	0.390	+/-2.75		pCi/g						
Protactinium-231	UI	0.00	+/-1.31	1.36	0.625	+/-1.32		pCi/g						
Radium-226		0.908	+/-0.289	0.232	0.104	+/-0.298		pCi/g						
Radium-228		1.13	+/-0.469	0.550	0.244	+/-0.488		pCi/g						
Thallium-208		0.407	+/-0.125	0.105	0.0464	+/-0.130		pCi/g						
Tin-126	U	0.0958	+/-0.170	0.240	0.115	+/-0.176		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		17.0	+/-2.33	2.32	1.07	+/-4.04	4.00	pCi/g		KXB2	12/01/15	1954	1525765	3
Beta		28.1	+/-1.79	1.65	0.796	+/-4.50	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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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Certificate of Analysis

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.2.E.1
Sample ID: 385077008

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

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

Client Sample ID: 3.1.2.E.2
Sample ID: 385077009
Matrix: Soil
Collect Date: 20-OCT-15 11:00
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.6%

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		22.6				percent	CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.095	+/-0.430	0.680		pCi/g	RXF2	12/03/15	1110	1522384	2
Antimony-125	U	-0.141	+/-0.169	0.277		pCi/g					
Cesium-137		2.83	+/-0.202	0.0876	0.100	pCi/g					
Cobalt-60	U	-0.0139	+/-0.0613	0.116		pCi/g					
Europium-154	U	-0.131	+/-0.183	0.318		pCi/g					
Protactinium-231	UI	0.00	+/-1.12	1.32		pCi/g					
Radium-226		1.22	+/-0.231	0.173		pCi/g					
Radium-228		1.31	+/-0.373	0.363		pCi/g					
Tin-126	UI	0.00	+/-0.167	0.178		pCi/g					

Rad Gas Flow Proportional Counting

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

Alpha		21.1	+/-2.71	2.94	4.00	pCi/g	KXB2	12/01/15	1955	1525765	3
Beta		27.8	+/-1.76	1.75	10.0	pCi/g					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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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Report Date: December 17, 2015

Client Sample ID: 3.1.2.E.2
Sample ID: 385077009
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.6%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		22.6						percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec. Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.095	+/-0.430	0.680	0.319	+/-0.433		pCi/g		RXF2	12/03/15	1110	1522384	2
Antimony-125	U	-0.141	+/-0.169	0.277	0.129	+/-0.181		pCi/g						
Bismuth-212		2.21	+/-0.893	1.39	0.628	+/-0.925		pCi/g						
Bismuth-214		1.22	+/-0.231	0.173	0.0784	+/-0.256		pCi/g						
Cesium-137		2.83	+/-0.202	0.0876	0.039	+/-0.325	0.100	pCi/g						
Cobalt-60	U	-0.0139	+/-0.0613	0.116	0.050	+/-0.0616		pCi/g						
Europium-154	U	-0.131	+/-0.183	0.318	0.138	+/-0.193		pCi/g						
Lead-212		1.38	+/-0.164	0.159	0.075	+/-0.207		pCi/g						
Lead-214		1.44	+/-0.272	0.223	0.105	+/-0.300		pCi/g						
Potassium-40		16.9	+/-2.05	1.16	0.501	+/-2.51		pCi/g						
Protactinium-231	UI	0.00	+/-1.12	1.32	0.618	+/-1.24		pCi/g						
Radium-226		1.22	+/-0.231	0.173	0.0784	+/-0.256		pCi/g						
Radium-228		1.31	+/-0.373	0.363	0.161	+/-0.427		pCi/g						
Thallium-208		0.358	+/-0.117	0.0943	0.0428	+/-0.121		pCi/g						
Tin-126	UI	0.00	+/-0.167	0.178	0.0841	+/-0.171		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		21.1	+/-2.71	2.94	1.39	+/-4.94	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		27.8	+/-1.76	1.75	0.846	+/-4.27	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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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Report Date: December 17, 2015

Client Sample ID: 3.1.2.E.2
Sample ID: 385077009

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

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Address : 15 Hazelwood Drive
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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.2.E.4
Sample ID: 385077010
Matrix: Soil
Collect Date: 20-OCT-15 11:30
Receive Date: 05-NOV-15
Collector: Client
Moisture: 28.2%

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		28.2				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0258	+/-0.374	0.618		pCi/g		RXF2	12/03/15	1110	1522384	2
Antimony-125	U	0.0434	+/-0.129	0.244		pCi/g						
Cesium-137	U	0.111	+/-0.0628	0.134	0.100	pCi/g						
Cobalt-60	U	-0.00513	+/-0.0445	0.0869		pCi/g						
Europium-154	U	-0.0586	+/-0.159	0.289		pCi/g						
Protactinium-231	UI	0.00	+/-1.30	1.17		pCi/g						
Radium-226		1.06	+/-0.188	0.170		pCi/g						
Radium-228		1.41	+/-0.325	0.315		pCi/g						
Tin-126	UI	0.00	+/-0.184	0.184		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		15.4	+/-2.07	2.11	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		26.5	+/-1.88	2.13	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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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Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.2.E.4
Sample ID: 385077010
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 28.2%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		28.2						percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0258	+/-0.374	0.618	0.289	+/-0.374		pCi/g		RXP2	12/03/15	1110	1522384	2
Antimony-125	U	0.0434	+/-0.129	0.244	0.112	+/-0.131		pCi/g						
Bismuth-212	UI	0.00	+/-0.816	1.66	0.769	+/-0.913		pCi/g						
Bismuth-214		1.06	+/-0.188	0.170	0.0769	+/-0.211		pCi/g						
Cesium-137	UI	0.00	+/-0.0628	0.134	0.0625	+/-0.081	0.100	pCi/g						
Cobalt-60	U	-0.00513	+/-0.0445	0.0869	0.0362	+/-0.0445		pCi/g						
Europium-154	U	-0.0586	+/-0.159	0.289	0.125	+/-0.161		pCi/g						
Lead-212		1.35	+/-0.161	0.138	0.0646	+/-0.199		pCi/g						
Lead-214		1.19	+/-0.210	0.178	0.0822	+/-0.234		pCi/g						
Potassium-40		17.5	+/-2.06	1.04	0.447	+/-2.55		pCi/g						
Protactinium-231	UI	0.00	+/-1.30	1.17	0.544	+/-1.36		pCi/g						
Radium-226		1.06	+/-0.188	0.170	0.0769	+/-0.211		pCi/g						
Radium-228		1.41	+/-0.325	0.315	0.138	+/-0.389		pCi/g						
Thallium-208		0.419	+/-0.112	0.0828	0.0372	+/-0.118		pCi/g						
Tin-126	UI	0.00	+/-0.184	0.184	0.0872	+/-0.187		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		15.4	+/-2.07	2.11	0.983	+/-3.64	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		26.5	+/-1.88	2.13	1.04	+/-4.17	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.2.E.4
Sample ID: 385077010

Project: MJWC00115
Client ID: MJWC001

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

Batch ID Recovery% Acceptable Limits

Notes:

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

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.3.E.1
Sample ID: 385077011
Matrix: Soil
Collect Date: 20-OCT-15 13:40
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.3%

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		22.3				percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.199	+/-0.287	0.513		pCi/g		RXF2	12/03/15	1111	1522384	2
Antimony-125	U	-0.0166	+/-0.119	0.215		pCi/g						
Cesium-137		1.24	+/-0.122	0.0719	0.100	pCi/g						
Cobalt-60	U	0.00584	+/-0.0434	0.0865		pCi/g						
Europium-154	U	-0.084	+/-0.147	0.259		pCi/g						
Protactinium-231	U	0.908	+/-0.773	0.975		pCi/g						
Radium-226		1.04	+/-0.174	0.153		pCi/g						
Radium-228		1.20	+/-0.265	0.230		pCi/g						
Tin-126	U	0.0841	+/-0.131	0.140		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		14.3	+/-2.07	2.38	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		22.1	+/-1.44	1.20	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

The following Analytical Methods were performed:

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

Notes:

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Project: Soil Radioisotopes

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Sample ID: 385077011
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.3%

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		22.3						percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.199	+/-0.287	0.513	0.240	+/-0.302		pCi/g		RXP2	12/03/15	1111	1522384	2
Antimony-125	U	-0.0166	+/-0.119	0.215	0.0997	+/-0.119		pCi/g						
Bismuth-212	UI	0.00	+/-0.763	1.39	0.647	+/-1.02		pCi/g						
Bismuth-214		1.04	+/-0.174	0.155	0.071	+/-0.193		pCi/g						
Cesium-137		1.24	+/-0.122	0.0719	0.0323	+/-0.157	0.100	pCi/g						
Cobalt-60	U	0.00584	+/-0.0434	0.0865	0.0376	+/-0.0435		pCi/g						
Europium-154	U	-0.084	+/-0.147	0.259	0.114	+/-0.152		pCi/g						
Lead-212		1.31	+/-0.135	0.117	0.055	+/-0.175		pCi/g						
Lead-214		1.20	+/-0.189	0.162	0.0754	+/-0.213		pCi/g						
Potassium-40		15.1	+/-1.53	0.471	0.179	+/-2.01		pCi/g						
Protactinium-231	UI	0.00	+/-0.773	0.975	0.455	+/-0.800		pCi/g						
Radium-226		1.04	+/-0.174	0.155	0.071	+/-0.193		pCi/g						
Radium-228		1.20	+/-0.265	0.230	0.0996	+/-0.317		pCi/g						
Thallium-208		0.383	+/-0.0777	0.0737	0.0336	+/-0.0838		pCi/g						
Tin-126	UI	0.00	+/-0.131	0.140	0.0666	+/-0.133		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		14.3	+/-2.07	2.38	1.12	+/-3.48	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		22.1	+/-1.44	1.20	0.574	+/-3.39	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.3.E.1
Sample ID: 385077011

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

Report Date: December 7, 2015

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

Client Sample ID: 3.1.3.E.2
Sample ID: 385077012
Matrix: Soil
Collect Date: 20-OCT-15 13:50
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.4%

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		22.4				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.187	+/-0.402	0.623		pCi/g		RXF2	12/03/15	1111	1522384	2
Antimony-125	U	-0.016	+/-0.140	0.255		pCi/g						
Cesium-137		1.54	+/-0.159	0.121	0.100	pCi/g						
Cobalt-60	U	0.013	+/-0.0499	0.101		pCi/g						
Europium-154	U	-0.0145	+/-0.151	0.287		pCi/g						
Protactinium-231	U	0.543	+/-0.790	1.36		pCi/g						
Radium-226		1.05	+/-0.224	0.171		pCi/g						
Radium-228		1.33	+/-0.358	0.334		pCi/g						
Tin-126	U	0.00723	+/-0.193	0.279		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		18.0	+/-2.24	2.30	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		28.5	+/-2.05	2.51	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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
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Buffalo, New York 14228

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.3.E.2
Sample ID: 385077012
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.4%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		22.4						percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.187	+/-0.402	0.623	0.292	+/-0.412		pCi/g		RXF2	12/03/15	1111	1522384	2
Antimony-125	U	-0.016	+/-0.140	0.255	0.119	+/-0.140		pCi/g						
Bismuth-212	UI	0.00	+/-0.996	1.71	0.794	+/-1.24		pCi/g						
Bismuth-214		1.05	+/-0.224	0.171	0.078	+/-0.241		pCi/g						
Cesium-137		1.54	+/-0.159	0.121	0.0561	+/-0.203	0.100	pCi/g						
Cobalt-60	U	0.013	+/-0.0499	0.101	0.044	+/-0.0503		pCi/g						
Europium-154	U	-0.0145	+/-0.151	0.287	0.125	+/-0.151		pCi/g						
Lead-212		1.42	+/-0.164	0.153	0.0726	+/-0.199		pCi/g						
Lead-214		1.23	+/-0.249	0.435	0.211	+/-0.267		pCi/g						
Potassium-40		14.7	+/-1.69	0.866	0.366	+/-2.13		pCi/g						
Protactinium-231	U	0.543	+/-0.790	1.36	0.641	+/-0.835		pCi/g						
Radium-226		1.05	+/-0.224	0.171	0.078	+/-0.241		pCi/g						
Radium-228		1.33	+/-0.358	0.334	0.149	+/-0.397		pCi/g						
Thallium-208		0.406	+/-0.124	0.0998	0.0459	+/-0.129		pCi/g						
Tin-126	U	0.00723	+/-0.193	0.279	0.135	+/-0.194		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		18.0	+/-2.24	2.30	1.08	+/-4.22	4.00	pCi/g		KXB2	12/01/15	1955	1525765	3
Beta		28.5	+/-2.05	2.51	1.23	+/-4.64	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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

Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.3.E.2
Sample ID: 385077012

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

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

Client Sample ID: 3.1.3.E.4
Sample ID: 385077013
Matrix: Soil
Collect Date: 20-OCT-15 14:25
Receive Date: 05-NOV-15
Collector: Client
Moisture: 23%

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		23.0				percent	CXC1	11/10/15	1347	1521843		1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.0286	+/-0.359	0.669		pCi/g	RXF2	12/03/15	1112	1522384		2
Antimony-125	U	-0.0962	+/-0.141	0.241		pCi/g						
Cesium-137		0.178	+/-0.091	0.0874	0.100	pCi/g						
Cobalt-60	U	-0.0268	+/-0.0478	0.0858		pCi/g						
Europium-154	U	-0.0528	+/-0.167	0.310		pCi/g						
Protactinium-231	UI	0.09	+/-0.719	0.873		pCi/g						
Radium-226		0.904	+/-0.230	0.183		pCi/g						
Radium-228		1.14	+/-0.351	0.286		pCi/g						
Tin-126	U	0.111	+/-0.172	0.194		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		12.8	+/-1.84	1.79	4.00	pCi/g	KXB2	12/01/15	1956	1525765		3
Beta		26.0	+/-1.75	1.76	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.3.E.4
Sample ID: 385077013
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 23%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		23.0						percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0286	+/-0.359	0.669	0.314	+/-0.359		pCi/g		RXF2	12/03/15	1112	1522384	2
Antimony-125	U	-0.0962	+/-0.141	0.241	0.111	+/-0.147		pCi/g						
Bismuth-212	UI	0.00	+/-0.990	1.69	0.783	+/-1.18		pCi/g						
Bismuth-214		0.904	+/-0.230	0.183	0.0837	+/-0.244		pCi/g						
Cesium-137		0.178	+/-0.091	0.0874	0.0392	+/-0.0924	10.00	pCi/g						
Cobalt-60	U	-0.0268	+/-0.0478	0.0858	0.0357	+/-0.0493		pCi/g						
Europium-154	U	-0.0528	+/-0.167	0.310	0.136	+/-0.169		pCi/g						
Lead-212		1.16	+/-0.146	0.132	0.0617	+/-0.179		pCi/g						
Lead-214		1.07	+/-0.254	0.160	0.0733	+/-0.270		pCi/g						
Potassium-40		16.2	+/-2.02	1.13	0.491	+/-2.44		pCi/g						
Protactinium-231	UI	0.00	+/-0.719	0.873	0.395	+/-0.753		pCi/g						
Radium-226		0.904	+/-0.230	0.183	0.0837	+/-0.244		pCi/g						
Radium-228		1.14	+/-0.351	0.286	0.123	+/-0.386		pCi/g						
Thallium-208		0.281	+/-0.115	0.0769	0.0343	+/-0.118		pCi/g						
Tin-126	UI	0.00	+/-0.172	0.194	0.0923	+/-0.173		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		12.8	+/-1.84	1.79	0.826	+/-3.16	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		26.0	+/-1.75	1.76	0.851	+/-4.06	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.3.E.4
Sample ID: 385077013

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

Report Date: December 7, 2015

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

Client Sample ID: 3.1.4.R.1
Sample ID: 385077014
Matrix: Soil
Collect Date: 21-OCT-15 10:55
Receive Date: 05-NOV-15
Collector: Client
Moisture: 21.4%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		21.4				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.09	+/-0.281	0.522		pCi/g		RXF2	12/03/15	1112	1522384	2
Antimony-125	U	0.0478	+/-0.0998	0.194		pCi/g						
Cesium-137		0.762	+/-0.0927	0.0697	0.100	pCi/g						
Cobalt-60	U	0.0209	+/-0.0434	0.0901		pCi/g						
Europium-154	U	-0.0107	+/-0.105	0.204		pCi/g						
Protactinium-231	U	0.363	+/-0.832	0.835		pCi/g						
Radium-226		0.728	+/-0.192	0.135		pCi/g						
Radium-228		0.871	+/-0.277	0.275		pCi/g						
Tin-126	UI	0.00	+/-0.201	0.164		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		11.5	+/-1.87	2.13	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		20.8	+/-1.99	2.65	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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
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Buffalo, New York 14228

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.4.R.1
Sample ID: 385077014
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 21.4%

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		21.4						percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma. Solid "Dry Weight Corrected"

Actinium-227	U	-0.09	+/-0.281	0.522	0.245	+/-0.284		pCi/g		RXF2	12/03/15	1112	1522384	2
Antimony-125	U	0.0478	+/-0.0998	0.194	0.0897	+/-0.102		pCi/g						
Bismuth-212	U	0.520	+/-0.726	1.27	0.586	+/-0.764		pCi/g						
Bismuth-214		0.728	+/-0.192	0.135	0.0613	+/-0.202		pCi/g						
Cesium-137		0.762	+/-0.0927	0.0697	0.0314	+/-0.112	0.100	pCi/g						
Cobalt-60	U	0.0209	+/-0.0434	0.0901	0.0397	+/-0.0445		pCi/g						
Europium-154	U	-0.0107	+/-0.105	0.204	0.0872	+/-0.105		pCi/g						
Lead-212		0.942	+/-0.158	0.163	0.0782	+/-0.176		pCi/g						
Lead-214		1.19	+/-0.181	0.339	0.164	+/-0.206		pCi/g						
Potassium-40		10.9	+/-1.39	0.760	0.326	+/-1.69		pCi/g						
Protactinium-231	U	0.363	+/-0.832	0.835	0.386	+/-0.836		pCi/g						
Radium-226		0.728	+/-0.192	0.135	0.0613	+/-0.202		pCi/g						
Radium-228		0.871	+/-0.277	0.275	0.123	+/-0.306		pCi/g						
Thallium-208		0.280	+/-0.0734	0.0732	0.0335	+/-0.0771		pCi/g						
Tin-126	UI	0.00	+/-0.201	0.164	0.0785	+/-0.203		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		11.5	+/-1.87	2.13	0.997	+/-3.00	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		20.8	+/-1.99	2.65	1.30	+/-3.58	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.4.R.1
Sample ID: 385077014

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

Report Date: December 7, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.4.R.2

Project: MJWC00115

Sample ID: 385077015

Client ID: MJWC001

Matrix: Soil

Collect Date: 21-OCT-15 11:05

Receive Date: 05-NOV-15

Collector: Client

Moisture: 21.6%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		21.6				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.115	+/-0.277	0.490		pCi/g		RXF2	12/03/15	1112	1522384	2
Antimony-125	U	-0.0339	+/-0.106	0.189		pCi/g						
Cesium-137		1.13	+/-0.120	0.0632	0.100	pCi/g						
Cobalt-60	U	0.00591	+/-0.0347	0.0673		pCi/g						
Europium-154	U	-0.0405	+/-0.107	0.194		pCi/g						
Protactinium-231	U	0.754	+/-0.767	0.787		pCi/g						
Radium-226		0.810	+/-0.159	0.128		pCi/g						
Radium-228		1.07	+/-0.241	0.223		pCi/g						
Tin-126	U1	0.00	+/-0.124	0.140		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		14.7	+/-2.08	2.16	4.00	pCi/g		KXB2	12/01/15	1936	1525765	3
Beta		22.7	+/-1.71	1.82	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.4.R.2
Sample ID: 385077015
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 21.6%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		21.6						percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.115	+/-0.277	0.490	0.232	+/-0.282		pCi/g		RXF2	12/03/15	1112	1522384	2
Antimony-125	U	-0.0339	+/-0.106	0.189	0.0891	+/-0.107		pCi/g						
Bismuth-212	UI	0.00	+/-0.527	1.09	0.511	+/-0.652		pCi/g						
Bismuth-214		0.810	+/-0.159	0.128	0.0596	+/-0.172		pCi/g						
Cesium-137		1.13	+/-0.120	0.0632	0.0292	+/-0.151	0.100	pCi/g						
Cobalt-60	U	0.00591	+/-0.0347	0.0673	0.030	+/-0.0348		pCi/g						
Europium-154	U	-0.0405	+/-0.107	0.194	0.0868	+/-0.109		pCi/g						
Lead-212		1.07	+/-0.115	0.0972	0.0459	+/-0.144		pCi/g						
Lead-214		1.06	+/-0.175	0.301	0.146	+/-0.196		pCi/g						
Potassium-40		14.7	+/-1.20	0.591	0.260	+/-1.75		pCi/g						
Protactinium-231	UI	0.00	+/-0.767	0.787	0.369	+/-0.785		pCi/g						
Radium-226		0.810	+/-0.159	0.128	0.0596	+/-0.172		pCi/g						
Radium-228		1.07	+/-0.241	0.223	0.101	+/-0.295		pCi/g						
Thallium-208		0.301	+/-0.0761	0.058	0.0267	+/-0.0801		pCi/g						
Tin-126	UI	0.00	+/-0.124	0.140	0.0668	+/-0.126		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		14.7	+/-2.08	2.16	1.00	+/-3.51	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		22.7	+/-1.71	1.82	0.878	+/-3.66	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.4.R.2
Sample ID: 385077015

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.4.R.4
Sample ID: 385077016
Matrix: Soil
Collect Date: 21-OCT-15 11:20
Receive Date: 05-NOV-15
Collector: Client
Moisture: 21.6%

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		21.6				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.00799	+/-0.257	0.482		pCi/g		RXP2	12/03/15	1113	1522384	2
Antimony-125	U	-0.0256	+/-0.0984	0.176		pCi/g						
Cesium-137		0.821	+/-0.0951	0.064	0.100	pCi/g						
Cobalt-60	U	-0.0101	+/-0.0312	0.0591		pCi/g						
Europium-154	U	0.0182	+/-0.122	0.213		pCi/g						
Protactinium-231	U	0.492	+/-0.496	0.981		pCi/g						
Radium-226		0.792	+/-0.145	0.141		pCi/g						
Radium-228		0.752	+/-0.322	0.202		pCi/g						
Tin-126	UI	0.00	+/-0.111	0.118		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		13.1	+/-1.89	2.05	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		20.2	+/-1.42	1.35	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.4.R.4
Sample ID: 385077016
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 21.6%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		21.6						percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.00799	+/-0.257	0.482	0.226	+/-0.257		pCi/g		RXF2	12/03/15	1113	1522384	2
Antimony-125	U	-0.0256	+/-0.0984	0.176	0.0813	+/-0.0991		pCi/g						
Bismuth-212	UI	0.00	+/-0.607	1.17	0.543	+/-0.705		pCi/g						
Bismuth-214		0.792	+/-0.145	0.141	0.0648	+/-0.160		pCi/g						
Cesium-137		0.821	+/-0.0951	0.064	0.0289	+/-0.117	0.100	pCi/g						
Cobalt-60	U	-0.0101	+/-0.0312	0.0591	0.0247	+/-0.0315		pCi/g						
Europium-154	U	0.0182	+/-0.122	0.213	0.0931	+/-0.122		pCi/g						
Lead-212		1.13	+/-0.123	0.106	0.0502	+/-0.165		pCi/g						
Lead-214		1.13	+/-0.184	0.141	0.0656	+/-0.209		pCi/g						
Potassium-40		13.0	+/-1.37	0.531	0.217	+/-1.79		pCi/g						
Protactinium-231	UI	0.00	+/-0.496	0.981	0.462	+/-0.555		pCi/g						
Radium-226		0.792	+/-0.145	0.141	0.0648	+/-0.160		pCi/g						
Radium-228		0.752	+/-0.322	0.202	0.0877	+/-0.341		pCi/g						
Thallium-208		0.290	+/-0.086	0.0647	0.0295	+/-0.0894		pCi/g						
Tin-126	UI	0.00	+/-0.111	0.118	0.0564	+/-0.113		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		13.1	+/-1.89	2.05	0.960	+/-3.15	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		20.2	+/-1.42	1.35	0.646	+/-3.14	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.4.R.4
Sample ID: 385077016

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.5.R.1
Sample ID: 385077017
Matrix: Soil
Collect Date: 21-OCT-15 15:00
Receive Date: 05-NOV-15
Collector: Client
Moisture: 20%

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		20.0				percent	CXC1	11/10/15	1347	1521843		1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.259	+/-0.351	0.614		pCi/g	RXF2	12/03/15	1113	1522384		2
Antimony-125	U	0.0106	+/-0.114	0.210		pCi/g						
Cesium-137		1.11	+/-0.124	0.0731	0.100	pCi/g						
Cobalt-60	U	-0.00027	+/-0.0429	0.0851		pCi/g						
Europium-154	U	0.0226	+/-0.125	0.253		pCi/g						
Protactinium-231	U	0.296	+/-0.650	1.19		pCi/g						
Radium-226		0.795	+/-0.155	0.140		pCi/g						
Radium-228		0.992	+/-0.301	0.239		pCi/g						
Tin-126	U	0.121	+/-0.142	0.201		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		12.5	+/-1.91	2.08	4.00	pCi/g	KXB2	12/01/15	1956	1525765		3
Beta		20.5	+/-1.65	1.82	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

The following Analytical Methods were performed:

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: 3.1.5.R.1
Sample ID: 385077017
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 20%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		20.0						percent		CXCI	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.259	+/-0.351	0.614	0.290	+/-0.372		pCi/g		RXF2	12/03/15	1113	1522384	2
Antimony-125	U	0.0106	+/-0.114	0.210	0.0967	+/-0.114		pCi/g						
Bismuth-212	UI	0.00	+/-0.882	1.36	0.629	+/-0.951		pCi/g						
Bismuth-214		0.795	+/-0.155	0.140	0.0632	+/-0.171		pCi/g						
Cesium-137		1.11	+/-0.124	0.0731	0.0328	+/-0.160	0.100	pCi/g						
Cobalt-60	U	-0.00027	+/-0.0429	0.0851	0.0366	+/-0.0429		pCi/g						
Europium-154	U	0.0226	+/-0.125	0.253	0.110	+/-0.125		pCi/g						
Lead-212		1.11	+/-0.138	0.127	0.0599	+/-0.173		pCi/g						
Lead-214		1.10	+/-0.189	0.350	0.169	+/-0.213		pCi/g						
Potassium-40		13.3	+/-1.54	0.476	0.178	+/-1.91		pCi/g						
Protactinium-231	U	0.296	+/-0.650	1.19	0.562	+/-0.667		pCi/g						
Radium-226		0.795	+/-0.155	0.140	0.0632	+/-0.171		pCi/g						
Radium-228		0.992	+/-0.301	0.239	0.103	+/-0.339		pCi/g						
Thallium-208		0.329	+/-0.0898	0.0621	0.0276	+/-0.0945		pCi/g						
Tin-126	UI	0.00	+/-0.142	0.201	0.0963	+/-0.143		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A:B, solid "Dry Weight Corrected"</i>														
Alpha		12.5	+/-1.91	2.08	0.966	+/-3.06	4.00	pCi/g		KXB2	12/01/15	1956	1525765	3
Beta		20.5	+/-1.65	1.82	0.879	+/-3.37	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	CXCI	11/10/15	1347	1521843

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: 3.1.5.R.1
Sample ID: 385077017

Project: MJWC00115
Client ID: MJWC001

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

Batch ID Recovery% Acceptable Limits

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: February 10, 2016

Client Sample ID: 3.1.5.R.2
Sample ID: 389303005
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 14-JAN-16
Collector: Client
Moisture: 15.6%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		15.6						percent		CXC1	01/14/16	1202	1537321	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.212	+/-0.336	0.522	0.241	+/-0.351		pCi/g		RXF2	02/05/16	0724	1537551	2
Antimony-125	U	0.0975	+/-0.120	0.245	0.112	+/-0.128		pCi/g						
Bismuth-212	UI	0.00	+/-0.852	1.42	0.646	+/-0.994		pCi/g						
Bismuth-214		0.817	+/-0.160	0.139	0.0614	+/-0.174		pCi/g						
Cesium-137		0.940	+/-0.140	0.0887	0.0397	+/-0.159	0.100	pCi/g						
Cobalt-60	U	0.0112	+/-0.0396	0.0874	0.0361	+/-0.0399		pCi/g						
Europium-154	U	-0.0645	+/-0.119	0.224	0.0916	+/-0.123		pCi/g						
Lead-212		-0.858	+/-0.133	0.123	0.0573	+/-0.152		pCi/g						
Lead-214		0.765	+/-0.205	0.154	0.0702	+/-0.215		pCi/g						
Potassium-40		10.5	+/-1.57	1.02	0.435	+/-1.81		pCi/g						
Protactinium-231	U	0.206	+/-0.631	1.10	0.507	+/-0.640		pCi/g						
Radium-226		0.817	+/-0.160	0.139	0.0614	+/-0.174		pCi/g						
Radium-228		0.944	+/-0.283	0.278	0.119	+/-0.308		pCi/g						
Thallium-208		0.246	+/-0.0759	0.0807	0.0362	+/-0.0786		pCi/g						
Tin-126	UI	0.00	+/-0.164	0.177	0.0834	+/-0.165		pCi/g						
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.061	+/-0.240	0.446	0.210	+/-0.241		pCi/g		RXF2	01/18/16	0936	1537548	3
Antimony-125	U	-0.00818	+/-0.120	0.189	0.0888	+/-0.120		pCi/g						
Bismuth-212	UI	0.00	+/-0.561	1.13	0.530	+/-0.724		pCi/g						
Bismuth-214		0.699	+/-0.153	0.130	0.0603	+/-0.164		pCi/g						
Cesium-137		0.978	+/-0.0991	0.0759	0.0354	+/-0.127	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0351	0.0747	0.0335	+/-0.0386		pCi/g						
Europium-154	U	-0.0832	+/-0.118	0.203	0.091	+/-0.124		pCi/g						
Lead-212		0.840	+/-0.133	0.127	0.0607	+/-0.149		pCi/g						
Lead-214		0.600	+/-0.143	0.129	0.0603	+/-0.151		pCi/g						
Potassium-40		12.4	+/-1.32	0.461	0.193	+/-1.70		pCi/g						
Protactinium-231	UI	0.00	+/-0.605	1.04	0.495	+/-0.688		pCi/g						
Radium-226		0.699	+/-0.153	0.130	0.0603	+/-0.164		pCi/g						
Radium-228		0.679	+/-0.219	0.248	0.114	+/-0.244		pCi/g						
Thallium-208		0.236	+/-0.0672	0.0567	0.026	+/-0.070		pCi/g						
Tin-126	UI	0.00	+/-0.107	0.118	0.0556	+/-0.108		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		13.4	+/-4.47	3.86	1.43	+/-5.17	4.00	pCi/g		JXB7	01/26/16	1137	1539464	4
Beta		25.8	+/-3.69	2.84	1.26	+/-5.26	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: 3.1.5.R.2
Sample ID: 389303005

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	1202	1537321

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).

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Certificate of Analysis

Report Date: December 7, 2015

Company : MJW Corporation
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: 3.1.5.R.6
Sample ID: 385077018
Matrix: Water
Collect Date: 21-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	-4.01	+/-28.1	50.1		pCi/L		MJH1	11/17/15	0700	1521915	1
Antimony-125	U	3.43	+/-9.89	18.1		pCi/L						
Cesium-137	U	-0.0607	+/-4.50	7.34	10.0	pCi/L						
Cobalt-60	U	1.75	+/-4.04	8.20		pCi/L						
Europium-154	U	-5.67	+/-11.5	20.3		pCi/L						
Protactinium-231	U	-13.1	+/-54.3	88.1		pCi/L						
Radium-228	U	-8.91	+/-19.5	27.6		pCi/L						
Tin-126	U	-8.53	+/-10.7	15.9		pCi/L						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, liquid "As Received"												
Alpha	U	-1.45	+/-1.49	4.10	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	1.44	+/-2.10	3.60	5.00	pCi/L						

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901.1	
2	EPA 900 Q/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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey

Project: Soil Radioisotopes

Client Sample ID: 3.1.5.R.6
Sample ID: 385077018
Matrix: Water
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>GammaSpec, Gamma, Liquid (Standard List) "As Received"</i>														
Actinium-227	U	-4.01	+/-28.1	50.1	23.7	+/-28.2		pCi/L		MJH1	11/17/15	0700	1521915	1
Antimony-125	U	3.43	+/-9.89	18.1	8.42	+/-10.0		pCi/L						
Bismuth-212	U	29.7	+/-64.9	113	52.1	+/-66.3		pCi/L						
Bismuth-214	UI	0.00	+/-12.0	17.8	8.35	+/-13.1		pCi/L						
Cesium-137	U	-0.0607	+/-4.50	7.34	3.37	+/-4.50	10.0	pCi/L						
Cobalt-60	U	1.75	+/-4.04	8.20	3.62	+/-4.12		pCi/L						
Europium-154	U	-5.67	+/-11.5	20.3	8.83	+/-11.8		pCi/L						
Lead-212	UI	0.00	+/-10.0	15.5	7.45	+/-10.8		pCi/L						
Lead-214	U	5.84	+/-10.2	17.2	8.12	+/-10.6		pCi/L						
Potassium-40	U	-72.3	+/-52.1	87.6	39.0	+/-61.7		pCi/L						
Protactinium-231	U	-13.1	+/-54.3	88.1	41.3	+/-54.7		pCi/L						
Radium-228	U	-8.91	+/-19.5	27.6	12.5	+/-20.0		pCi/L						
Thallium-208	UI	0.00	+/-7.47	5.79	2.61	+/-7.49		pCi/L						
Tin-126	U	-8.53	+/-10.7	15.9	7.56	+/-11.4		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-1.45	+/-1.49	4.10	1.63	+/-1.49	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	1.44	+/-2.10	3.60	1.54	+/-2.11	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).

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Certificate of Analysis

Report Date: December 7, 2015

Company : MJW Corporation
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: 3.1.6.R.1
Sample ID: 385077019
Matrix: Soil
Collect Date: 21-OCT-15 14:15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 18.4%

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		18.4				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.13	+/-0.243	0.438		pCi/g		RXF2	12/03/15	1114	1522384	2
Antimony-125	U	-0.0274	+/-0.0904	0.165		pCi/g						
Cesium-137		1.04	+/-0.092	0.0633	0.100	pCi/g						
Cobalt-60	U	0.0352	+/-0.033	0.071		pCi/g						
Europium-154	U	0.117	+/-0.115	0.212		pCi/g						
Protactinium-231	UI	0.00	+/-0.743	0.764		pCi/g						
Radium-226		0.731	+/-0.168	0.121		pCi/g						
Radium-228		0.685	+/-0.290	0.237		pCi/g						
Tin-126	U	0.135	+/-0.146	0.168		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		10.8	+/-4.44	3.79	4.00	pCi/g		JXB7	12/02/15	1405	1525768	3
Beta		15.3	+/-3.82	4.05	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.6.R.1
Sample ID: 385077019
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 18.4%

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		18.4						percent		CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.13	+/-0.243	0.438	0.208	+/-0.251		pCi/g		RXF2	12/03/15	1114	1522384	2
Antimony-125	U	-0.0274	+/-0.0904	0.165	0.0778	+/-0.0913		pCi/g						
Bismuth-212	UI	0.00	+/-0.750	1.08	0.510	+/-0.852		pCi/g						
Bismuth-214		0.731	+/-0.168	0.121	0.0565	+/-0.179		pCi/g						
Cesium-137		1.04	+/-0.092	0.0633	0.0295	+/-0.129	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.033	0.071	0.0322	+/-0.0367		pCi/g						
Europium-154	UI	0.00	+/-0.115	0.212	0.097	+/-0.127		pCi/g						
Lead-212		0.992	+/-0.120	0.104	0.0498	+/-0.143		pCi/g						
Lead-214		0.937	+/-0.167	0.257	0.125	+/-0.182		pCi/g						
Potassium-40		13.3	+/-1.13	0.380	0.158	+/-1.60		pCi/g						
Protactinium-231	UI	0.00	+/-0.743	0.764	0.361	+/-0.823		pCi/g						
Radium-226		0.731	+/-0.168	0.121	0.0565	+/-0.179		pCi/g						
Radium-228		0.685	+/-0.290	0.237	0.109	+/-0.298		pCi/g						
Thallium-208		0.241	+/-0.0711	0.052	0.024	+/-0.074		pCi/g						
Tin-126	UI	0.00	+/-0.146	0.168	0.0815	+/-0.147		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		10.8	+/-4.44	3.79	1.27	+/-4.92	4.00	pCi/g		JXB7	12/02/15	1405	1525768	3
Beta		15.3	+/-3.82	4.05	1.77	+/-4.41	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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: 3.1.6.R.1
Sample ID: 385077019

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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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: 3.1.6.R.2
Sample ID: 389303006
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 14-JAN-16
Collector: Client
Moisture: 19.1%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		19.1						percent		CXC1	01/14/16	1202	1537321	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.211	+/-0.335	0.605	0.285	+/-0.349		pCi/g		RXF2	02/05/16	0725	1537551	2
Antimony-125	U	-0.03	+/-0.152	0.277	0.130	+/-0.153		pCi/g						
Bismuth-212		1.06	+/-0.658	1.02	0.456	+/-0.666		pCi/g						
Bismuth-214		0.718	+/-0.206	0.154	0.0699	+/-0.215		pCi/g						
Cesium-137		2.52	+/-0.190	0.0834	0.0376	+/-0.280	0.100	pCi/g						
Cobalt-60	U	-0.0168	+/-0.043	0.079	0.0332	+/-0.0436		pCi/g						
Europium-154	U	-0.053	+/-0.103	0.186	0.076	+/-0.106		pCi/g						
Lead-212		0.938	+/-0.139	0.140	0.0663	+/-0.157		pCi/g						
Lead-214		0.899	+/-0.266	0.190	0.0888	+/-0.275		pCi/g						
Potassium-40		11.8	+/-1.49	0.747	0.312	+/-1.82		pCi/g						
Protactinium-231	UI	0.00	+/-1.05	1.19	0.557	+/-1.07		pCi/g						
Radium-226		0.718	+/-0.206	0.154	0.0699	+/-0.215		pCi/g						
Radium-228		0.916	+/-0.327	0.369	0.167	+/-0.348		pCi/g						
Thallium-208		0.202	+/-0.0999	0.0903	0.0415	+/-0.101		pCi/g						
Tin-126	U	0.0902	+/-0.210	0.232	0.112	+/-0.210		pCi/g						
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0238	+/-0.303	0.555	0.263	+/-0.303		pCi/g		RXF2	01/18/16	0937	1537548	3
Antimony-125	U	0.074	+/-0.107	0.208	0.0967	+/-0.113		pCi/g						
Bismuth-212		1.16	+/-0.744	0.890	0.400	+/-0.753		pCi/g						
Bismuth-214		0.573	+/-0.214	0.126	0.0574	+/-0.219		pCi/g						
Cesium-137		2.74	+/-0.174	0.0702	0.0318	+/-0.288	0.100	pCi/g						
Cobalt-60	U	0.0276	+/-0.0326	0.0754	0.0325	+/-0.0349		pCi/g						
Europium-154	U	-0.0267	+/-0.087	0.167	0.0691	+/-0.0878		pCi/g						
Lead-212		0.967	+/-0.128	0.117	0.0551	+/-0.158		pCi/g						
Lead-214		0.752	+/-0.186	0.168	0.079	+/-0.197		pCi/g						
Potassium-40		12.2	+/-1.31	0.564	0.231	+/-1.70		pCi/g						
Protactinium-231	UI	0.00	+/-0.812	0.918	0.429	+/-0.822		pCi/g						
Radium-226		0.573	+/-0.214	0.126	0.0574	+/-0.219		pCi/g						
Radium-228		0.551	+/-0.340	0.227	0.0994	+/-0.350		pCi/g						
Thallium-208		0.206	+/-0.0722	0.0576	0.0258	+/-0.0742		pCi/g						
Tin-126	UI	0.00	+/-0.104	0.121	0.0578	+/-0.106		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A B, solid "Dry Weight Corrected"</i>														
Alpha		10.8	+/-3.83	3.85	1.51	+/-4.37	4.00	pCi/g		JXB7	01/26/16	1135	1539464	4
Beta		30.2	+/-3.66	2.21	0.953	+/-5.69	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: 3.1.6.R.2
Sample ID: 389303006

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	1202	1537321

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 7, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.7.R.1
Sample ID: 385077020
Matrix: Soil
Collect Date: 19-OCT-15 14:50
Receive Date: 05-NOV-15
Collector: Client
Moisture: 24.2%

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		24.2				percent	CXC1	11/10/15	1347	1521843	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.0425	+/-0.316	0.610		pCi/g	RXF2	12/03/15	1114	1522384	2
Antimony-125	U	0.0725	+/-0.144	0.275		pCi/g					
Cesium-137		1.17	+/-0.175	0.103	0.100	pCi/g					
Cobalt-60	U	-0.000285	+/-0.0565	0.109		pCi/g					
Europium-154	U	-0.0842	+/-0.154	0.269		pCi/g					
Protactinium-231	U	0.938	+/-0.752	1.13		pCi/g					
Radium-226		0.942	+/-0.208	0.181		pCi/g					
Radium-228	UI	0.00	+/-0.380	0.697		pCi/g					
Tin-126	U	0.138	+/-0.154	0.196		pCi/g					

Rad Gas Flow Proportional Counting

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

Alpha		10.1	+/-3.56	3.48	4.00	pCi/g	JXB7	12/02/15	1345	1525768	3
Beta		25.2	+/-3.50	2.93	10.0	pCi/g					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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 Radionuclides

Report Date: December 17, 2015

Client Sample ID: 3.1.7.R.1
Sample ID: 385077020
Matrix: Soil
Collect Date: 19-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 24.2%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		24.2						percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0425	+/-0.316	0.610	0.285	+/-0.317		pCi/g		RXF2	12/03/15	1114	1522384	2
Antimony-125	U	0.0725	+/-0.144	0.275	0.128	+/-0.148		pCi/g						
Bismuth-212	UI	0.00	+/-0.753	1.64	0.756	+/-1.20		pCi/g						
Bismuth-214		0.942	+/-0.208	0.181	0.0824	+/-0.224		pCi/g						
Cesium-137		1.17	+/-0.175	0.103	0.0468	+/-0.199	0.100	pCi/g						
Cobalt-60	U	-0.000285	+/-0.0565	0.109	0.0469	+/-0.0565		pCi/g						
Europium-154	U	-0.0842	+/-0.154	0.269	0.114	+/-0.159		pCi/g						
Lead-212		1.17	+/-0.150	0.136	0.064	+/-0.177		pCi/g						
Lead-214		1.12	+/-0.206	0.179	0.0827	+/-0.227		pCi/g						
Potassium-40		16.0	+/-1.93	0.874	0.363	+/-2.37		pCi/g						
Protactinium-231	UI	0.00	+/-0.752	1.13	0.527	+/-0.781		pCi/g						
Radium-226		0.942	+/-0.208	0.181	0.0824	+/-0.224		pCi/g						
Radium-228	UI	0.00	+/-0.380	0.697	0.328	+/-0.576		pCi/g						
Thallium-208		0.357	+/-0.0877	0.0897	0.0407	+/-0.0931		pCi/g						
Tin-126	UI	0.00	+/-0.154	0.196	0.0935	+/-0.156		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		10.1	+/-3.56	3.48	1.37	+/-4.08	4.00	pCi/g		JXB7	12/02/15	1345	1525768	3
Beta		25.2	+/-3.50	2.93	1.31	+/-4.93	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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 Loscy
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.7.R.1
Sample ID: 385077020

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: February 10, 2016

Client Sample ID: 3.1.7.R.2
Sample ID: 389303007
Matrix: Soil
Collect Date: 19-OCT-15
Receive Date: 14-JAN-16
Collector: Client
Moisture: 24.4%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		24.4						percent		CXC1	01/14/16	1202	1537321	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0459	+/-0.384	0.706	0.330	+/-0.385		pCi/g		RXF2	02/05/16	0725	1537551	2
Antimony-125	U	-0.0724	+/-0.166	0.289	0.133	+/-0.169		pCi/g						
Bismuth-212	UI	0.00	+/-1.02	1.76	0.810	+/-1.18		pCi/g						
Bismuth-214		1.02	+/-0.201	0.185	0.0837	+/-0.220		pCi/g						
Cesium-137		0.869	+/-0.142	0.0946	0.0422	+/-0.162	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0633	0.134	0.0588	+/-0.0699		pCi/g						
Europium-154	U	0.0647	+/-0.211	0.418	0.187	+/-0.213		pCi/g						
Lead-212		1.24	+/-0.215	0.233	0.112	+/-0.242		pCi/g						
Lead-214		1.21	+/-0.233	0.209	0.0971	+/-0.256		pCi/g						
Potassium-40		18.7	+/-2.13	0.882	0.360	+/-2.66		pCi/g						
Protactinium-231	UI	0.00	+/-0.904	1.24	0.575	+/-0.958		pCi/g						
Radium-226		1.02	+/-0.201	0.185	0.0837	+/-0.220		pCi/g						
Radium-228		1.30	+/-0.394	0.305	0.131	+/-0.435		pCi/g						
Thallium-208		0.481	+/-0.101	0.0966	0.0438	+/-0.109		pCi/g						
Tin-126	UI	0.00	+/-0.204	0.230	0.110	+/-0.206		pCi/g						
<i>Gamma spec. Gamma. Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.200	+/-0.325	0.634	0.296	+/-0.339		pCi/g		RXF2	01/18/16	0939	1537548	3
Antimony-125	U	-0.000137	+/-0.137	0.261	0.119	+/-0.137		pCi/g						
Bismuth-212	UI	0.00	+/-2.11	2.33	1.08	+/-2.65		pCi/g						
Bismuth-214		0.965	+/-0.217	0.169	0.0741	+/-0.232		pCi/g						
Cesium-137		0.998	+/-0.139	0.120	0.0537	+/-0.161	0.100	pCi/g						
Cobalt-60	U	-0.0154	+/-0.0688	0.131	0.0548	+/-0.0692		pCi/g						
Europium-154	U	0.0277	+/-0.351	0.570	0.256	+/-0.351		pCi/g						
Lead-212		1.13	+/-0.168	0.153	0.0723	+/-0.209		pCi/g						
Lead-214		1.34	+/-0.240	0.452	0.218	+/-0.267		pCi/g						
Potassium-40		15.4	+/-2.20	0.699	0.244	+/-2.60		pCi/g						
Protactinium-231	U	0.316	+/-0.692	1.31	0.612	+/-0.710		pCi/g						
Radium-226		0.965	+/-0.217	0.169	0.0741	+/-0.232		pCi/g						
Radium-228	UI	0.00	+/-0.378	0.901	0.423	+/-0.807		pCi/g						
Thallium-208		0.449	+/-0.126	0.120	0.0543	+/-0.131		pCi/g						
Tin-126	UI	0.00	+/-0.093	0.115	0.0545	+/-0.0952		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A+B, solid "Dry Weight Corrected"</i>														
Alpha		19.5	+/-6.16	3.54	1.05	+/-7.24	4.00	pCi/g		JXB7	01/26/16	1137	1539464	4
Beta		25.7	+/-4.32	2.98	1.25	+/-5.67	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

Report Date: February 10, 2016

Contact: Ms. Laurie Losey

Project: Soil Radioisotopes

Client Sample ID: 3.I.7.R.2
Sample ID: 389303007

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	1202	1537321

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

Report Date: December 7, 2015

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

Client Sample ID: 3.1.8.R.1
Sample ID: 385077021
Matrix: Soil
Collect Date: 19-OCT-15 15:20
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.3%

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		22.3				percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.078	+/-0.285	0.530		pCi/g		RXF2	12/03/15	1114	1522384	2
Antimony-125	U	0.0462	+/-0.131	0.260		pCi/g						
Cesium-137		0.952	+/-0.137	0.105	0.100	pCi/g						
Cobalt-60	U	3.29E-05	+/-0.0705	0.137		pCi/g						
Europium-154	U	0.179	+/-0.184	0.412		pCi/g						
Protactinium-231	U	0.529	+/-0.632	1.14		pCi/g						
Radium-226		1.14	+/-0.210	0.167		pCi/g						
Radium-228		0.961	+/-0.351	0.434		pCi/g						
Tin-126	UI	0.00	+/-0.0975	0.111		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		10.1	+/-3.17	3.60	4.00	pCi/g		JXB7	12/02/15	1402	1525768	3
Beta		21.3	+/-3.21	3.97	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	ASTM D 2216 (Modified)		
2	DOE HIASL 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 Loséy
Project: Soil Radioisotopes

Client Sample ID: 3.1.8.R.1
Sample ID: 385077021
Matrix: Soil
Collect Date: 19-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.3%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPC	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
ASTM D 2216 % Moisture "As Received"														
Moisture		22.3						percent		CXC1	11/10/15	1347	1521843	1
Rad Gamma Spec Analysis														
Gammascpec, Gamma, Solid "Dry Weight Corrected"														
Actinium-227	U	-0.078	+/-0.285	0.530	0.246	+/-0.288		pCi/g		RXF2	12/03/15	1114	1522384	2
Antimony-125	U	0.0462	+/-0.131	0.260	0.120	+/-0.133		pCi/g						
Bismuth-212	UI	0.00	+/-0.876	1.69	0.772	+/-0.960		pCi/g						
Bismuth-214		1.14	+/-0.210	0.167	0.0744	+/-0.231		pCi/g						
Cesium-137		0.952	+/-0.137	0.105	0.0472	+/-0.157	0.100	pCi/g						
Cobalt-60	U	3.29E-05	+/-0.0705	0.137	0.0595	+/-0.0705		pCi/g						
Europium-154	U	0.179	+/-0.184	0.412	0.182	+/-0.201		pCi/g						
Lead-212		1.27	+/-0.141	0.118	0.0551	+/-0.199		pCi/g						
Lead-214		1.09	+/-0.235	0.165	0.0757	+/-0.254		pCi/g						
Potassium-40		13.9	+/-1.94	1.29	0.553	+/-2.31		pCi/g						
Protactinium-231	U	0.529	+/-0.632	1.14	0.533	+/-0.686		pCi/g						
Radium-226		1.14	+/-0.210	0.167	0.0744	+/-0.231		pCi/g						
Radium-228		0.961	+/-0.351	0.434	0.193	+/-0.372		pCi/g						
Thallium-208		0.420	+/-0.0846	0.0906	0.0406	+/-0.0918		pCi/g						
Tin-126	UI	0.00	+/-0.0975	0.111	0.0528	+/-0.0997		pCi/g						
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, solid "Dry Weight Corrected"														
Alpha		10.1	+/-3.17	3.60	1.56	+/-3.80	4.00	pCi/g		JXB7	12/02/15	1402	1525768	3
Beta		21.3	+/-3.21	3.97	1.89	+/-4.42	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1347	1521843

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 Loscy
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.8.R.1
Sample ID: 385077021

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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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: 3.1.8.R.2
Sample ID: 389303008
Matrix: Soil
Collect Date: 19-OCT-15
Receive Date: 14-JAN-16
Collector: Client
Moisture: 22.7%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		22.7						percent		CXC1	01/14/16	1202	1537321	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.115	+/-0.295	0.538	0.251	+/-0.300		pCi/g		RXF2	02/05/16	0725	1537551	2
Antimony-125	U	0.0577	+/-0.119	0.228	0.105	+/-0.122		pCi/g						
Bismuth-212	UI	0.00	+/-1.49	1.53	0.713	+/-1.63		pCi/g						
Bismuth-214		0.981	+/-0.184	0.135	0.0607	+/-0.202		pCi/g						
Cesium-137		0.972	+/-0.117	0.0796	0.0359	+/-0.141	0.100	pCi/g						
Cobalt-60	U	-0.052	+/-0.0493	0.0775	0.0324	+/-0.0547		pCi/g						
Europium-154	U	-0.126	+/-0.147	0.244	0.105	+/-0.158		pCi/g						
Lead-212		1.16	+/-0.133	0.115	0.054	+/-0.164		pCi/g						
Lead-214		0.927	+/-0.217	0.167	0.0777	+/-0.230		pCi/g						
Potassium-40		14.8	+/-1.70	0.815	0.346	+/-2.14		pCi/g						
Protactinium-231	UI	0.00	+/-0.566	1.05	0.491	+/-0.583		pCi/g						
Radium-226		0.981	+/-0.184	0.135	0.0607	+/-0.202		pCi/g						
Radium-228		1.14	+/-0.321	0.320	0.143	+/-0.364		pCi/g						
Thallium-208		0.334	+/-0.0856	0.0717	0.0323	+/-0.0901		pCi/g						
Tin-126	UI	0.00	+/-0.0946	0.189	0.0907	+/-0.122		pCi/g						
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0509	+/-0.338	0.643	0.300	+/-0.339		pCi/g		RXF2	01/18/16	0951	1537548	3
Antimony-125	U	-0.0439	+/-0.123	0.220	0.0992	+/-0.125		pCi/g						
Bismuth-212		1.48	+/-0.799	1.11	0.486	+/-0.811		pCi/g						
Bismuth-214		0.781	+/-0.194	0.176	0.0792	+/-0.204		pCi/g						
Cesium-137		0.850	+/-0.128	0.100	0.0452	+/-0.145	0.100	pCi/g						
Cobalt-60	U	0.00527	+/-0.0459	0.0961	0.0401	+/-0.046		pCi/g						
Europium-154	U	0.0161	+/-0.169	0.332	0.145	+/-0.169		pCi/g						
Lead-212		0.963	+/-0.162	0.140	0.0653	+/-0.182		pCi/g						
Lead-214		0.830	+/-0.231	0.377	0.181	+/-0.242		pCi/g						
Potassium-40		14.6	+/-1.78	0.864	0.354	+/-2.17		pCi/g						
Protactinium-231	U	0.0933	+/-0.678	1.28	0.595	+/-0.679		pCi/g						
Radium-226		0.781	+/-0.194	0.176	0.0792	+/-0.204		pCi/g						
Radium-228		0.937	+/-0.300	0.277	0.117	+/-0.324		pCi/g						
Thallium-208		0.273	+/-0.0878	0.0999	0.0455	+/-0.0906		pCi/g						
Tin-126	UI	0.00	+/-0.167	0.222	0.106	+/-0.167		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		17.8	+/-4.94	3.88	1.48	+/-6.03	4.00	pCi/g		JXB7	01/26/16	1138	1539464	4
Beta		27.8	+/-4.00	3.97	1.84	+/-5.69	10.0	pCi/g						

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Certificate of Analysis

Company : MIW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: 3.1.8.R.2
Sample ID: 389303008

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	1202	1537321

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 7, 2015

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

Client Sample ID: 3.1.8.R.6
Sample ID: 385077022
Matrix: Water
Collect Date: 19-OCT-15 16:15
Receive Date: 05-NOV-15
Collector: Client

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Liquid (Standard List) "As Received"												
Actinium-227	U	-7.35	+/-31.7	54.9		pCi/L		MJH1	11/17/15	0710	1521915	1
Antimony-125	U	8.29	+/-12.4	18.6		pCi/L						
Cesium-137	U	4.62	+/-7.04	7.68	10.0	pCi/L						
Cobalt-60	U	-0.837	+/-4.13	6.41		pCi/L						
Europium-154	U	-1.9	+/-13.0	23.7		pCi/L						
Protactinium-231	U	-3.47	+/-60.2	105		pCi/L						
Radium-228	UI	0.00	+/-23.7	24.8		pCi/L						
Tin-126	U	1.41	+/-13.8	16.6		pCi/L						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, liquid "As Received"												
Alpha	U	-0.394	+/-1.37	3.12	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	-1.74	+/-2.37	4.71	5.00	pCi/L						

The following Analytical Methods were performed:

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: 3.1.8.R.6
Sample ID: 385077022
Matrix: Water
Collect Date: 19-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.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Liquid (Standard List) "As Received"</i>														
Actinium-227	U	-7.35	+/-31.7	54.9	26.2	+/-31.8		pCi/L		MJH1	11/17/15	0710	1521915	1
Antimony-125	U	8.29	+/-12.4	18.6	8.74	+/-13.0		pCi/L						
Bismuth-212	U	3.83	+/-78.5	121	56.6	+/-78.5		pCi/L						
Bismuth-214	U	1.15	+/-14.5	16.0	7.50	+/-14.5		pCi/L						
Cesium-137	UI	0.00	+/-7.04	7.68	3.56	+/-7.05	10.0	pCi/L						
Cobalt-60	U	-0.837	+/-4.13	6.41	2.77	+/-4.15		pCi/L						
Europium-154	U	-1.9	+/-13.0	23.7	10.6	+/-13.1		pCi/L						
Lead-212	U	0.176	+/-11.4	14.2	6.81	+/-11.4		pCi/L						
Lead-214	U	3.31	+/-14.5	18.0	8.61	+/-14.6		pCi/L						
Potassium-40	U	-82.5	+/-68.0	112	51.7	+/-77.8		pCi/L						
Protactinium-231	U	-3.47	+/-60.2	105	49.9	+/-60.3		pCi/L						
Radium-228	UI	0.00	+/-23.7	24.8	11.2	+/-24.1		pCi/L						
Thallium-208	UI	0.00	+/-5.64	9.62	4.55	+/-6.71		pCi/L						
Tin-126	U	1.41	+/-13.8	16.6	8.00	+/-13.8		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-0.394	+/-1.37	3.12	1.24	+/-1.37	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	-1.74	+/-2.37	4.71	2.14	+/-2.37	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).

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Certificate of Analysis

Report Date: December 7, 2015

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

Client Sample ID: 3.1.9.E.1
Sample ID: 385077023
Matrix: Soil
Collect Date: 20-OCT-15 14:45
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.1%

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		22.1				percent		CXC1	11/10/15	1328	1521844	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0975	+/-0.329	0.608		pCi/g		RXF2	12/03/15	0721	1522386	2
Antimony-125	U	0.0871	+/-0.106	0.218		pCi/g						
Cesium-137		1.36	+/-0.157	0.105	0.100	pCi/g						
Cobalt-60	U	0.0466	+/-0.0506	0.114		pCi/g						
Europium-154	U	-0.113	+/-0.130	0.219		pCi/g						
Protactinium-231	U	1.18	+/-0.829	1.24		pCi/g						
Radium-226		0.883	+/-0.203	0.148		pCi/g						
Radium-228		1.26	+/-0.361	0.319		pCi/g						
Tin-126	U	0.109	+/-0.122	0.236		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		14.9	+/-4.08	3.69	4.00	pCi/g		JXB7	12/02/15	1405	1525768	3
Beta		11.6	+/-2.53	2.58	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1328	1521844

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: 3.1.9.E.1
Sample ID: 385077023
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.1%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RI	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		22.1						percent		CXC1	11/10/15	1328	1521844	4
Rad Gamma Spec Analysis														
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0975	+/-0.329	0.608	0.284	+/-0.332		pCi/g		RXF2	12/03/15	0721	1522386	2
Antimony-125	U	0.0871	+/-0.106	0.218	0.0999	+/-0.113		pCi/g						
Bismuth-212		2.21	+/-0.853	1.16	0.518	+/-0.884		pCi/g						
Bismuth-214		0.883	+/-0.203	0.148	0.0663	+/-0.218		pCi/g						
Cesium-137		1.36	+/-0.157	0.105	0.048	+/-0.200	0.100	pCi/g						
Cobalt-60	U	0.0466	+/-0.0506	0.114	0.050	+/-0.0549		pCi/g						
Europium-154	U	-0.113	+/-0.130	0.219	0.0906	+/-0.140		pCi/g						
Lead-212		1.19	+/-0.151	0.148	0.0698	+/-0.185		pCi/g						
Lead-214		1.21	+/-0.233	0.417	0.202	+/-0.256		pCi/g						
Potassium-40		15.7	+/-1.72	0.607	0.235	+/-2.18		pCi/g						
Protactinium-231	UI	0.00	+/-0.829	1.24	0.582	+/-0.873		pCi/g						
Radium-226		0.883	+/-0.203	0.148	0.0663	+/-0.218		pCi/g						
Radium-228		1.26	+/-0.361	0.319	0.141	+/-0.402		pCi/g						
Thallium-208		0.398	+/-0.104	0.0853	0.0387	+/-0.110		pCi/g						
Tin-126	U	0.109	+/-0.122	0.236	0.113	+/-0.132		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		14.9	+/-4.08	3.69	1.49	+/-4.99	4.00	pCi/g		JXB7	12/02/15	1405	1525768	3
Beta		11.6	+/-2.53	2.58	1.14	+/-3.04	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1328	1521844

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

Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: 3.1.9.E.1
Sample ID: 385077023

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: 3.1.9.E.2
Sample ID: 389303009
Matrix: Soil
Collect Date: 20-OCT-15
Receive Date: 14-JAN-16
Collector: Client
Moisture: 22.8%

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.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		22.8						percent		CXC1	01/14/16	1202	1537321	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.262	+/-0.399	0.740	0.351	+/-0.418		pCi/g		RXF2	02/05/16	0726	1537551	2
Antimony-125	U	0.0925	+/-0.121	0.302	0.141	+/-0.129		pCi/g						
Bismuth-212	UI	0.00	+/-1.86	1.68	0.779	+/-2.15		pCi/g						
Bismuth-214		1.21	+/-0.196	0.210	0.0976	+/-0.220		pCi/g						
Cesium-137		1.85	+/-0.178	0.113	0.052	+/-0.231	0.100	pCi/g						
Cobalt-60	U	-0.0121	+/-0.0506	0.0933	0.0398	+/-0.0509		pCi/g						
Europium-154	U	0.0468	+/-0.187	0.320	0.141	+/-0.188		pCi/g						
Lead-212		1.35	+/-0.171	0.162	0.0768	+/-0.204		pCi/g						
Lead-214		1.09	+/-0.259	0.221	0.104	+/-0.274		pCi/g						
Potassium-40		15.3	+/-1.71	0.853	0.360	+/-2.15		pCi/g						
Protactinium-231	UI	0.00	+/-0.896	1.31	0.617	+/-0.937		pCi/g						
Radium-226		1.21	+/-0.196	0.210	0.0976	+/-0.220		pCi/g						
Radium-228		1.23	+/-0.339	0.329	0.146	+/-0.378		pCi/g						
Thallium-208		0.305	+/-0.116	0.104	0.0478	+/-0.119		pCi/g						
Tin-126	UI	0.00	+/-0.152	0.196	0.0941	+/-0.153		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0559	+/-0.302	0.574	0.270	+/-0.303		pCi/g		RXF2	01/18/16	0939	1537548	3
Antimony-125	U	0.0655	+/-0.127	0.244	0.114	+/-0.131		pCi/g						
Bismuth-212	UI	0.00	+/-0.708	1.45	0.674	+/-1.11		pCi/g						
Bismuth-214		0.829	+/-0.186	0.165	0.0758	+/-0.199		pCi/g						
Cesium-137		1.93	+/-0.157	0.0947	0.0436	+/-0.228	0.100	pCi/g						
Cobalt-60	U	-0.023	+/-0.0511	0.076	0.0321	+/-0.0521		pCi/g						
Europium-154	U	0.0206	+/-0.131	0.255	0.111	+/-0.131		pCi/g						
Lead-212		1.32	+/-0.140	0.126	0.0596	+/-0.189		pCi/g						
Lead-214		1.05	+/-0.194	0.353	0.171	+/-0.215		pCi/g						
Potassium-40		14.1	+/-1.60	0.970	0.427	+/-2.01		pCi/g						
Protactinium-231	U	0.320	+/-0.791	1.15	0.540	+/-0.794		pCi/g						
Radium-226		0.829	+/-0.186	0.165	0.0758	+/-0.199		pCi/g						
Radium-228		1.10	+/-0.271	0.253	0.111	+/-0.319		pCi/g						
Thallium-208		0.341	+/-0.0967	0.0729	0.033	+/-0.101		pCi/g						
Tin-126	UI	0.00	+/-0.140	0.144	0.0687	+/-0.142		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		16.8	+/-4.88	3.80	1.41	+/-5.85	4.00	pCi/g		JXB7	01/26/16	1138	1539464	4
Beta		28.2	+/-4.16	3.88	1.77	+/-5.77	10.0	pCi/g						

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

Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: 3.I.9.E.2
Sample ID: 389303009

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	1202	1537321

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 Q/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 7, 2015

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

Client Sample ID: 3.1.9.E.6
Sample ID: 385077024
Matrix: Water
Collect Date: 20-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	27.4	+/-29.8	54.8		pCi/L		MJH1	11/17/15	0712	1521915	1
Antimony-125	U	-2.19	+/-9.90	17.7		pCi/L						
Cesium-137	U	1.37	+/-4.00	7.47	10.0	pCi/L						
Cobalt-60	U	0.608	+/-4.26	8.12		pCi/L						
Europium-154	U	-8.62	+/-11.1	18.5		pCi/L						
Protactinium-231	U	-68.4	+/-57.1	90.0		pCi/L						
Radium-228	U	0.986	+/-21.4	28.5		pCi/L						
Tin-126	U	-7.98	+/-11.7	17.6		pCi/L						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, liquid "As Received"												
Alpha	U	-1.65	+/-1.19	3.74	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	-0.673	+/-1.72	3.58	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: 3.1.9.E.6
Sample ID: 385077024
Matrix: Water
Collect Date: 20-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.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Liquid (Standard List) "As Received"</i>														
Actinium-227	UI	0.00	+/-29.8	54.8	26.1	+/-32.5		pCi/L		MJH1	11/17/15	0712	1521915	1
Antimony-125	U	-2.19	+/-9.90	17.7	8.25	+/-9.95		pCi/L						
Bismuth-212	U	-25	+/-64.8	100	45.9	+/-65.9		pCi/L						
Bismuth-214	U	4.82	+/-14.4	12.9	5.92	+/-14.4		pCi/L						
Cesium-137	U	1.37	+/-4.00	7.47	3.44	+/-4.05	10.0	pCi/L						
Cobalt-60	U	0.608	+/-4.26	8.12	3.61	+/-4.27		pCi/L						
Europium-154	U	-8.62	+/-11.1	18.5	8.03	+/-11.8		pCi/L						
Lead-212	UI	0.00	+/-12.7	11.1	5.28	+/-12.7		pCi/L						
Lead-214	U	-1.34	+/-10.1	15.9	7.49	+/-10.1		pCi/L						
Potassium-40	U	-43	+/-52.8	88.5	39.7	+/-56.4		pCi/L						
Protactinium-231	U	-68.4	+/-57.1	90.0	42.3	+/-66.7		pCi/L						
Radium-228	U	0.986	+/-21.4	28.5	13.0	+/-21.4		pCi/L						
Thallium-208	U	-5.06	+/-5.07	8.21	3.83	+/-5.57		pCi/L						
Tin-126	U	-7.98	+/-11.7	17.6	8.45	+/-12.3		pCi/L						

Rad Gas Flow Proportional Counting

GFPC, Gross A+B, liquid "As Received"

Alpha	U	-1.65	+/-1.19	3.74	1.47	+/-1.19	5.00	pCi/L		JXB7	12/02/15	1323	1525771	2
Beta	U	-0.673	+/-1.72	3.58	1.54	+/-1.72	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

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

Certificate of Analysis

Report Date: December 4, 2015

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

Client Sample ID: 3.1.10.E.1
Sample ID: 385070001
Matrix: Soil
Collect Date: 21-OCT-15 10:00
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.5%

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		22.5				percent	CXC1	11/10/15	1319	1521842		1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.0936	+/-0.382	0.695		pCi/g	RXF2	12/03/15	0837	1522383		2
Antimony-125	U	0.0373	+/-0.153	0.284		pCi/g						
Cesium-137		1.16	+/-0.156	0.0979	0.100	pCi/g						
Cobalt-60	U	0.0117	+/-0.0593	0.120		pCi/g						
Europium-154	U	-0.0198	+/-0.191	0.316		pCi/g						
Protactinium-231	U	0.808	+/-0.781	1.46		pCi/g						
Radium-226		1.04	+/-0.222	0.180		pCi/g						
Radium-228		1.28	+/-0.381	0.385		pCi/g						
Tin-126	U	0.00	+/-0.232	0.197		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		12.8	+/-3.99	3.97	4.00	pCi/g	KXB2	12/02/15	1109	1525757		3
Beta		21.5	+/-3.74	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	CXC1	11/10/15	1319	1521842

The following Analytical Methods were performed:

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: 3.1.10.E.1
Sample ID: 385070001
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.5%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		22.5						percent		CXC1	11/10/15	1319	1521842	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.0936	+/-0.382	0.695	0.325	+/-0.385		pCi/g		RXF2	12/03/15	0837	1522383	2
Antimony-125	U	0.0373	+/-0.153	0.284	0.131	+/-0.153		pCi/g						
Bismuth-212	UI	0.00	+/-0.817	1.72	0.793	+/-0.955		pCi/g						
Bismuth-214		1.04	+/-0.222	0.180	0.0815	+/-0.241		pCi/g						
Cesium-137		1.16	+/-0.156	0.0979	0.044	+/-0.189	0.100	pCi/g						
Cobalt-60	U	0.0117	+/-0.0593	0.120	0.052	+/-0.0595		pCi/g						
Europium-154	U	-0.0198	+/-0.191	0.316	0.136	+/-0.191		pCi/g						
Lead-212		1.07	+/-0.223	0.171	0.0808	+/-0.243		pCi/g						
Lead-214		0.976	+/-0.295	0.207	0.096	+/-0.307		pCi/g						
Potassium-40		14.0	+/-1.75	0.825	0.333	+/-2.11		pCi/g						
Protactinium-231	UI	0.00	+/-0.781	1.46	0.686	+/-0.881		pCi/g						
Radium-226		1.04	+/-0.222	0.180	0.0815	+/-0.241		pCi/g						
Radium-228		1.28	+/-0.381	0.385	0.171	+/-0.422		pCi/g						
Thallium-208		0.308	+/-0.0992	0.112	0.0516	+/-0.103		pCi/g						
Tin-126	UI	0.00	+/-0.232	0.197	0.0931	+/-0.234		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		12.8	+/-3.99	3.97	1.61	+/-4.74	4.00	pCi/g		KXB2	12/02/15	1109	1525757	3
Beta		21.5	+/-3.74	4.48	2.10	+/-4.87	10.0	pCi/g						

The following Prep Methods were performed

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

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 3.1.10.E.1
Sample ID: 385070001

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 Corporation
Address : 15 Hazelwood Drive
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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: 3.1.10.E.1
Sample ID: 385070001
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 22.5%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
ASTM D 2216 % Moisture "As Received"														
Moisture		22.5						percent		CXC1	11/10/15	1319	1521842	1
Rad Gamma Spec Analysis														
Gammascpec, Gamma, Solid "Dry Weight Corrected"														
Actinium-227	U	-0.0936	+/-0.382	0.695	0.325	+/-0.385		pCi/g		RXF2	12/03/15	0837	1522383	2
Antimony-125	U	0.0373	+/-0.153	0.284	0.131	+/-0.153		pCi/g						
Bismuth-212	UI	0.00	+/-0.817	1.72	0.793	+/-0.955		pCi/g						
Bismuth-214		1.04	+/-0.222	0.180	0.0815	+/-0.241		pCi/g						
Cesium-137		1.16	+/-0.156	0.0979	0.044	+/-0.189	0.100	pCi/g						
Cobalt-60	U	0.0117	+/-0.0593	0.120	0.052	+/-0.0595		pCi/g						
Europium-154	U	-0.0198	+/-0.191	0.316	0.136	+/-0.191		pCi/g						
Lead-212		1.07	+/-0.223	0.171	0.0808	+/-0.243		pCi/g						
Lead-214		0.976	+/-0.295	0.207	0.096	+/-0.307		pCi/g						
Potassium-40		14.0	+/-1.75	0.825	0.333	+/-2.11		pCi/g						
Protactinium-231	UI	0.00	+/-0.781	1.46	0.686	+/-0.881		pCi/g						
Radium-226		1.04	+/-0.222	0.180	0.0815	+/-0.241		pCi/g						
Radium-228		1.28	+/-0.381	0.385	0.171	+/-0.422		pCi/g						
Thallium-208		0.308	+/-0.0992	0.112	0.0516	+/-0.103		pCi/g						
Tin-126	UI	0.00	+/-0.232	0.197	0.0931	+/-0.234		pCi/g						
Rad Gas Flow Proportional Counting														
GFPC, Gross A/B, solid "Dry Weight Corrected"														
Alpha		12.8	+/-3.99	3.97	1.61	+/-4.74	4.00	pCi/g		KXB2	12/02/15	1109	1525757	3
Beta		21.5	+/-3.74	4.48	2.10	+/-4.87	10.0	pCi/g						

The following Prep Methods were performed

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

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300.4 5.2.3/Ga-01-R
3	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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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: 3.1.10.E.1
Sample ID: 385070001

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: 3.1.10.E.2
Sample ID: 389296006
Matrix: Soil
Collect Date: 21-OCT-15
Receive Date: 14-JAN-16
Collector: Client
Moisture: 24%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		24.0						percent		CXC1	01/14/16	1208	1537312	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.305	+/-0.352	0.610	0.287	+/-0.380		pCi/g		RXF2	02/05/16	0735	1537546	2
Antimony-125	U	0.0514	+/-0.127	0.240	0.111	+/-0.129		pCi/g						
Bismuth-212	UI	0.00	+/-0.973	1.49	0.688	+/-1.03		pCi/g						
Bismuth-214		0.963	+/-0.178	0.157	0.0711	+/-0.194		pCi/g						
Cesium-137		1.45	+/-0.167	0.0872	0.0395	+/-0.203	0.100	pCi/g						
Cobalt-60	U	0.0154	+/-0.0581	0.115	0.0509	+/-0.0585		pCi/g						
Europium-154	U	0.061	+/-0.147	0.300	0.132	+/-0.149		pCi/g						
Lead-212		1.29	+/-0.138	0.127	0.0596	+/-0.176		pCi/g						
Lead-214		1.08	+/-0.205	0.167	0.0774	+/-0.223		pCi/g						
Potassium-40		15.1	+/-1.65	0.622	0.248	+/-2.10		pCi/g						
Protactinium-231	UI	0.00	+/-1.00	1.13	0.528	+/-1.02		pCi/g						
Radium-226		0.963	+/-0.178	0.157	0.0711	+/-0.194		pCi/g						
Radium-228		1.27	+/-0.330	0.316	0.141	+/-0.378		pCi/g						
Thallium-208		0.400	+/-0.109	0.0826	0.0376	+/-0.114		pCi/g						
Tin-126	UI	0.00	+/-0.114	0.145	0.0687	+/-0.116		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.346	+/-0.350	0.597	0.278	+/-0.387		pCi/g		RXF2	01/18/16	0954	1537545	3
Antimony-125	U	0.0245	+/-0.154	0.279	0.129	+/-0.154		pCi/g						
Bismuth-212	UI	0.00	+/-0.774	1.63	0.750	+/-0.926		pCi/g						
Bismuth-214		0.918	+/-0.201	0.193	0.088	+/-0.217		pCi/g						
Cesium-137		1.28	+/-0.173	0.112	0.0511	+/-0.208	0.100	pCi/g						
Cobalt-60	U	0.00583	+/-0.0653	0.128	0.0563	+/-0.0654		pCi/g						
Europium-154	U	-0.11	+/-0.217	0.321	0.139	+/-0.223		pCi/g						
Lead-212		1.24	+/-0.155	0.150	0.0705	+/-0.192		pCi/g						
Lead-214		1.04	+/-0.228	0.198	0.0918	+/-0.246		pCi/g						
Potassium-40		16.2	+/-1.94	1.08	0.460	+/-2.38		pCi/g						
Protactinium-231	UI	0.00	+/-0.913	1.17	0.541	+/-0.953		pCi/g						
Radium-226		0.918	+/-0.201	0.193	0.088	+/-0.217		pCi/g						
Radium-228		0.971	+/-0.336	0.395	0.177	+/-0.370		pCi/g						
Thallium-208		0.340	+/-0.107	0.0933	0.0424	+/-0.111		pCi/g						
Tin-126	UI	0.00	+/-0.153	0.218	0.104	+/-0.155		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A+B, solid "Dry Weight Corrected"</i>														
Alpha		9.23	+/-3.22	3.99	1.74	+/-3.69	4.00	pCi/g		KXB2	01/26/16	1154	1539462	4
Beta		22.4	+/-2.95	3.27	1.54	+/-4.38	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: 3.1.10.E.2
Sample ID: 389296006

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).