

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.1.1
 Sample ID: 387763015
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 25.8%

Project: MJWC00115
 Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		25.8						percent		LYT1	12/18/15	0843	1532296	1
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Rad Gamma Spec Analysis

Gammascpec. Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.0592	+/-0.208	0.386	0.185	+/-0.210		pCi/g		RXF2	01/12/16	1103	1532303	2
Antimony-125	U	-0.014	+/-0.0826	0.145	0.0688	+/-0.0828		pCi/g						
Bismuth-212		1.10	+/-0.565	0.613	0.282	+/-0.575		pCi/g						
Bismuth-214		0.909	+/-0.121	0.098	0.0459	+/-0.143		pCi/g						
Cesium-137		1.37	+/-0.0983	0.0571	0.0268	+/-0.148	0.100	pCi/g						
Cobalt-60	U	-0.0223	+/-0.0267	0.0446	0.0196	+/-0.0286		pCi/g						
Europium-154	U	-0.00342	+/-0.088	0.163	0.0741	+/-0.088		pCi/g						
Lead-212		1.14	+/-0.0922	0.0851	0.0409	+/-0.128		pCi/g						
Lead-214		0.996	+/-0.143	0.109	0.0518	+/-0.163		pCi/g						
Potassium-40		14.1	+/-1.04	0.442	0.194	+/-1.65		pCi/g						
Protactinium-231	UI	0.00	+/-1.02	0.683	0.326	+/-1.05		pCi/g						
Radium-226		0.909	+/-0.121	0.098	0.0459	+/-0.143		pCi/g						
Radium-228		1.05	+/-0.262	0.184	0.0843	+/-0.298		pCi/g						
Thallium-208		0.349	+/-0.0625	0.0508	0.0238	+/-0.0689		pCi/g						
Tm-126	UI	0.00	+/-0.0977	0.0984	0.0474	+/-0.100		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		13.1	+/-3.63	3.92	1.69	+/-4.49	4.00	pCi/g		JXB7	01/11/16	1026	1534686	3
Beta		24.7	+/-3.08	3.46	1.64	+/-4.61	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	0843	1532296

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: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.1.1
Sample ID: 387763015

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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Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.2.1
 Sample ID: 387763016
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 28.6%

Project: MJWC00115
 Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		28.6						percent		LYT1	12/18/15	0843	1532296	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.222	+/-0.276	0.468	0.225	+/-0.296		pCi/g		RXF2	01/12/16	1104	1532303	2
Antimony-125	U	0.0521	+/-0.103	0.193	0.0921	+/-0.106		pCi/g						
Bismuth-212	UI	0.00	+/-0.643	1.14	0.544	+/-1.07		pCi/g						
Bismuth-214		0.928	+/-0.149	0.143	0.068	+/-0.167		pCi/g						
Cesium-137		2.93	+/-0.142	0.0692	0.0326	+/-0.274	0.100	pCi/g						
Cobalt-60	U	-0.00872	+/-0.0316	0.0566	0.0252	+/-0.0319		pCi/g						
Europium-154	U	0.00991	+/-0.100	0.186	0.0846	+/-0.100		pCi/g						
Lead-212		1.13	+/-0.104	0.100	0.0483	+/-0.140		pCi/g						
Lead-214		1.16	+/-0.187	0.145	0.0693	+/-0.209		pCi/g						
Potassium-40		16.2	+/-1.24	0.556	0.247	+/-1.85		pCi/g						
Protactinium-231	UI	0.00	+/-0.817	0.843	0.403	+/-0.889		pCi/g						
Radium-226		0.928	+/-0.149	0.143	0.068	+/-0.167		pCi/g						
Radium-228		0.930	+/-0.250	0.219	0.101	+/-0.280		pCi/g						
Thallium-208		0.340	+/-0.065	0.0608	0.0286	+/-0.0708		pCi/g						
Tin-126	UI	0.00	+/-0.110	0.119	0.0577	+/-0.114		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		15.0	+/-4.20	3.93	1.61	+/-5.12	4.00	pCi/g		JXB7	01/11/16	1015	1534686	3
Beta		26.4	+/-3.67	3.86	1.80	+/-5.28	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	0843	1532296

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4 5 2 3/Ga-01-R
3	EPA 900 0/SW846 9310/SM 7110B Modified

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

Client Sample ID: 4.2B.R.2.1
Sample ID: 387763016

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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Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.1
 Sample ID: 387763017
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 30.2%

Project: MJWC00115
 Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		30.2						percent		LYT1	12/18/15	0843	1532296	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.109	+/-0.195	0.372	0.178	+/-0.202		pCi/g		RXF2	01/12/16	1105	1532303	2
Antimony-125	UI	0.00	+/-0.0876	0.150	0.0712	+/-0.0946		pCi/g						
Bismuth-212	UI	0.00	+/-0.488	0.830	0.391	+/-0.700		pCi/g						
Bismuth-214		0.782	+/-0.115	0.0939	0.0439	+/-0.132		pCi/g						
Cesium-137		1.93	+/-0.102	0.0432	0.0199	+/-0.184	0.100	pCi/g						
Cobalt-60	U	-0.00429	+/-0.030	0.0465	0.0206	+/-0.0301		pCi/g						
Europium-154	U	-0.0178	+/-0.0909	0.161	0.0733	+/-0.0913		pCi/g						
Lead-212		1.10	+/-0.0919	0.0795	0.0382	+/-0.129		pCi/g						
Lead-214		1.01	+/-0.143	0.109	0.052	+/-0.164		pCi/g						
Potassium-40		13.8	+/-1.05	0.423	0.185	+/-1.63		pCi/g						
Protactinium-231	UI	0.00	+/-0.538	0.612	0.291	+/-0.569		pCi/g						
Radium-226		0.782	+/-0.115	0.0939	0.0439	+/-0.132		pCi/g						
Radium-228		0.824	+/-0.216	0.151	0.0678	+/-0.243		pCi/g						
Thallium-208		0.303	+/-0.0574	0.0449	0.0209	+/-0.0625		pCi/g						
Tin-126	UI	0.00	+/-0.0835	0.0862	0.0415	+/-0.0864		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		16.2	+/-4.05	3.96	1.68	+/-5.10	4.00	pCi/g		JXB7	01/11/16	1015	1534686	3
Beta		14.2	+/-2.34	2.05	0.912	+/-3.10	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	0843	1532296

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: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.1
Sample ID: 387763017

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.3.2
 Sample ID: 392057004
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 23.8%

Project: MJWC00115
 Client ID: MJWC001

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

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	-0.129	+/-0.422	0.777	0.363	+/-0.426		pCi/g		MXR1	03/07/16	1044	1547922	1
Antimony-125	U	-0.0743	+/-0.205	0.361	0.167	+/-0.208		pCi/g						
Bismuth-212	UI	0.00	+/-1.35	2.20	1.01	+/-1.78		pCi/g						
Bismuth-214		0.967	+/-0.248	0.220	0.0991	+/-0.260		pCi/g						
Cesium-137		2.72	+/-0.244	0.126	0.0567	+/-0.330	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0619	0.142	0.061	+/-0.0696		pCi/g						
Europium-154	U	0.100	+/-0.208	0.433	0.190	+/-0.213		pCi/g						
Lead-212		1.18	+/-0.190	0.176	0.0828	+/-0.222		pCi/g						
Lead-214		1.21	+/-0.296	0.485	0.234	+/-0.313		pCi/g						
Potassium-40		13.3	+/-2.03	0.819	0.314	+/-2.32		pCi/g						
Protactinium-231	U	0.714	+/-0.861	1.56	0.727	+/-0.933		pCi/g						
Radium-226		0.967	+/-0.248	0.220	0.0991	+/-0.260		pCi/g						
Radium-228		1.10	+/-0.362	0.308	0.127	+/-0.381		pCi/g						
Thallium-208		0.340	+/-0.106	0.121	0.055	+/-0.110		pCi/g						
Tin-126	UI	0.00	+/-0.133	0.194	0.0933	+/-0.147		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		15.4	+/-3.66	3.93	1.74	+/-4.69	4.00	pCi/g		BXF1	03/05/16	1448	1549866	2
Beta		21.7	+/-2.83	3.33	1.59	+/-4.23	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/26/16	1436	1547873

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300.4 5.2.3/Ga-01-R
2	EPA 900.0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
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Report Date: March 9, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.3.2
Sample ID: 392057004

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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Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.3
 Sample ID: 387763018
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 16%

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		16.0						percent		LYT1	12/18/15	0843	1532296	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	0.00714	+/-0.0397	0.076	0.0174	+/-0.0397	1.00	pCi/g		HAKB	01/07/16	1349	1532467	2
Plutonium-239/240	U	-0.0165	+/-0.0312	0.0962	0.0275	+/-0.0312	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.00763	+/-0.0527	0.128	0.0381	+/-0.0528	1.00	pCi/g		HAKB	01/07/16	1205	1532463	3
Uranium-233/234		0.853	+/-0.260	0.0956	0.0179	+/-0.302	1.00	pCi/g						
Uranium-235/236		0.0304	+/-0.0698	0.111	0.0254	+/-0.0701	1.00	pCi/g						
Uranium-238		0.489	+/-0.200	0.110	0.0253	+/-0.219	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.172	+/-0.179	0.620	0.203	+/-0.179	1.00	pCi/g		HAKB	01/07/16	1409	1532466	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		0.499	+/-0.420	0.494	0.147	+/-0.428	1.00	pCi/g		HAKB	01/07/16	1207	1532462	5
Thorium-229	U	0.0338	+/-0.188	0.360	0.0824	+/-0.188	1.00	pCi/g						
Thorium-230		0.632	+/-0.423	0.311	0.0581	+/-0.436	1.00	pCi/g						
Thorium-232		0.501	+/-0.382	0.310	0.058	+/-0.391	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	0.00138	+/-0.103	0.228	0.0621	+/-0.103	1.00	pCi/g		HAKB	01/08/16	0855	1532464	6
Curium-242		0.00	+/-0.0785	0.117	0.00	+/-0.0788	1.00	pCi/g						
Curium-243/244	U	0.026	+/-0.0974	0.164	0.0307	+/-0.0976	1.00	pCi/g						
Curium-245/246		0.149	+/-0.175	0.190	0.0355	+/-0.178	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-2.64	+/-6.12	10.7	5.20	+/-6.12	15.0	pCi/g		HAKB	01/13/16	2327	1532468	7
Rad Gamma Spec Analysis														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	0.082	+/-0.255	0.555	0.229	+/-0.258	1.00	pCi/g		MJH1	01/12/16	0844	1533088	8
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.108	+/-0.170	0.332	0.159	+/-0.178		pCi/g		RXF2	01/12/16	1105	1532303	9
Antimony-125	U	0.0234	+/-0.0668	0.125	0.0594	+/-0.0677		pCi/g						
Bismuth-212		0.599	+/-0.487	0.609	0.283	+/-0.492		pCi/g						
Bismuth-214		0.749	+/-0.110	0.0784	0.0365	+/-0.130		pCi/g						
Cesium-137		0.0907	+/-0.042	0.0513	0.0241	+/-0.0428	0.100	pCi/g						
Cobalt-60	U	0.00909	+/-0.0282	0.0552	0.0252	+/-0.0285		pCi/g						
Europium-154	U	0.00902	+/-0.0889	0.148	0.0675	+/-0.089		pCi/g						
Lead-212		0.903	+/-0.0839	0.0726	0.0348	+/-0.119		pCi/g						
Lead-214		0.977	+/-0.130	0.203	0.099	+/-0.157		pCi/g						

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 Client Sample ID: 4.2B.R.3.3
 Sample ID: 387763018

Report Date: January 15, 2016

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, Solid "Dry Weight Corrected"</i>														
Potassium-40		14.1	+/-1.03	0.382	0.167	+/-1.58		pCi/g						
Protactinium-231	UI	0.00	+/-0.515	0.463	0.217	+/-0.558		pCi/g						
Radium-226		0.749	+/-0.110	0.0784	0.0365	+/-0.130		pCi/g						
Radium-228		0.704	+/-0.206	0.162	0.0742	+/-0.233		pCi/g						
Thallium-208		0.280	+/-0.0537	0.0369	0.0171	+/-0.0592		pCi/g						
Tin-126	UI	0.00	+/-0.106	0.0955	0.046	+/-0.108		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		13.6	+/-3.61	3.93	1.71	+/-4.45	4.00	pCi/g		JXB7	01/11/16	1020	1534686	10
Beta		21.0	+/-2.29	2.32	1.09	+/-3.61	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	0.551	+/-0.963	1.67	0.760	+/-0.968	2.00	pCi/g		KSD1	01/06/16	1541	1534449	11
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium		2.14	+/-2.27	3.81	1.83	+/-2.27	6.00	pCi/g		TXJ1	01/06/16	2247	1533793	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	0.0776	+/-0.769	1.32	0.644	+/-0.769	2.00	pCi/g		TXJ1	01/13/16	2159	1533786	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.296	+/-1.44	2.50	1.20	+/-1.44	5.00	pCi/g		MYM 1	01/11/16	0321	1534429	14

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	0843	1532296

The following Analytical Methods were performed

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

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Certificate of Analysis

Company : MJW Corporation
 Address : 15 Hazelwood Drive
 Suite 112
 Buffalo, New York 14228
 Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes
 Client Sample ID: 4.2B.R.3.3
 Sample ID: 387763018

Report Date: January 15, 2016

Project: MJWC00115
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
14	DOE EML HASL-300. Tc-02-RC Modified													
Surrogate/Tracer Recovery	Test				Batch ID	Recovery%	Acceptable Limits							
Plutonium-242 Tracer	ASP Plutonium Isotopic. Solid "Dry Weight Corrected"				1532467	82.2	(15%-125%)							
Uranium-232 Tracer	ASP Uranium Isotopic. Solid "Dry Weight Corrected"				1532463	75.7	(15%-125%)							
Uranium-235/236 Tracer	ASP Uranium Isotopic. Solid "Dry Weight Corrected"				1532463	83.7	(15%-125%)							
Americium-243 Tracer	Alphaspec Np237. Solid "Dry Weight Corrected"				1532466	74.8	(15%-125%)							
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"				1532462	89.6	(15%-125%)							
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"				1532464	45.5	(15%-125%)							
Plutonium-242 Tracer	Liquid Scint Pu241. Solid "Dry Weight Corrected"				1532468	82.2	(15%-125%)							
Strontium Carrier	GFPC, Sr90. solid "Dry Weight Corrected"				1534449	80.3	(25%-125%)							
Technetium-99m Tracer	Liquid Scint Tc99. Solid "Dry Weight Corrected"				1534429	93.2	(15%-125%)							

Notes:

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

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Certificate of Analysis

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.4
 Sample ID: 387763019
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 14.2%

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		14.2						percent		LYT1	12/18/15	0843	1532296	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.0431	+/-0.0638	0.0933	0.0254	+/-0.0641	1.00	pCi/g		HAKB	01/07/16	1349	1532467	2
Plutonium-239/240	U	-0.00566	+/-0.0529	0.123	0.0402	+/-0.0529	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0058	+/-0.0661	0.140	0.043	+/-0.0662	1.00	pCi/g		HAKB	01/07/16	1205	1532463	3
Uranium-233/234		0.573	+/-0.197	0.102	0.026	+/-0.221	1.00	pCi/g						
Uranium-235/236		0.0335	+/-0.0574	0.0503	0.00	+/-0.0577	1.00	pCi/g						
Uranium-238		0.531	+/-0.188	0.0801	0.015	+/-0.210	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0106	+/-0.245	0.555	0.178	+/-0.245	1.00	pCi/g		HAKB	01/07/16	1409	1532466	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		0.610	+/-0.436	0.337	0.0631	+/-0.448	1.00	pCi/g		HAKB	01/07/16	1207	1532462	5
Thorium-229		0.0684	+/-0.192	0.205	0.00	+/-0.193	1.00	pCi/g						
Thorium-230		0.428	+/-0.383	0.417	0.106	+/-0.390	1.00	pCi/g						
Thorium-232		0.952	+/-0.517	0.204	0.00	+/-0.541	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241		0.0268	+/-0.0528	0.0731	0.0137	+/-0.0529	1.00	pCi/g		HAKB	01/08/16	0855	1532464	6
Curium-242		0.00	+/-0.0346	0.0515	0.00	+/-0.0347	1.00	pCi/g						
Curium-243/244	U	-0.0145	+/-0.0335	0.0993	0.0271	+/-0.0336	1.00	pCi/g						
Curium-245/246	U	-0.00419	+/-0.0361	0.0837	0.0157	+/-0.0362	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	3.68	+/-6.29	10.7	5.19	+/-6.33	15.0	pCi/g		HAKB	01/14/16	0014	1532468	7
Rad Gamma Spec Analysis														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.226	+/-0.426	0.766	0.242	+/-0.438	1.00	pCi/g		MJH1	01/12/16	0844	1533088	8
<i>Gammasp. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0437	+/-0.197	0.360	0.170	+/-0.198		pCi/g		RXF2	01/12/16	1106	1532303	9
Antimony-125	U	0.00308	+/-0.0776	0.133	0.0614	+/-0.0776		pCi/g						
Bismuth-212	U	0.295	+/-0.563	0.934	0.433	+/-0.579		pCi/g						
Bismuth-214		0.648	+/-0.143	0.101	0.0462	+/-0.153		pCi/g						
Cesium-137		0.0833	+/-0.0638	0.0495	0.0223	+/-0.0641	0.100	pCi/g						
Cobalt-60	U	-0.0253	+/-0.0389	0.0567	0.0243	+/-0.0406		pCi/g						
Europium-154	U	0.0209	+/-0.0943	0.192	0.0852	+/-0.0948		pCi/g						
Lead-212		0.801	+/-0.0941	0.0774	0.0367	+/-0.115		pCi/g						
Lead-214		0.936	+/-0.155	0.239	0.116	+/-0.173		pCi/g						

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 Address : 15 Hazelwood Drive
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 Buffalo, New York 14228
 Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes
 Client Sample ID: 4.2B.R.3.4
 Sample ID: 387763019

Report Date: January 15, 2016

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, Solid "Dry Weight Corrected"</i>														
Potassium-40		12.6	+/-1.20	0.516	0.218	+/-1.62		pCi/g						
Protactinium-231	U	0.00	+/-0.537	0.609	0.285	+/-0.574		pCi/g						
Radium-226		0.648	+/-0.143	0.101	0.0462	+/-0.153		pCi/g						
Radium-228		1.05	+/-0.242	0.209	0.0937	+/-0.273		pCi/g						
Thallium-208		0.213	+/-0.0624	0.051	0.0233	+/-0.0648		pCi/g						
Tin-126	U	0.00	+/-0.0809	0.0868	0.0415	+/-0.0831		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A.B. solid "Dry Weight Corrected"</i>														
Alpha		9.46	+/-3.02	3.85	1.72	+/-3.55	4.00	pCi/g		JXB7	01/11/16	1020	1534686	10
Beta		18.0	+/-2.37	2.72	1.29	+/-3.45	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.154	+/-0.678	1.29	0.584	+/-0.678	2.00	pCi/g		KSD1	01/06/16	1541	1534449	11
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist. Solid "Dry Weight Corrected"</i>														
Tritium	U	0.171	+/-2.01	3.49	1.68	+/-2.01	6.00	pCi/g		TXJ1	01/07/16	0000	1533793	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.642	+/-0.736	1.29	0.632	+/-0.736	2.00	pCi/g		TXJ1	01/13/16	2300	1533786	13
<i>Liquid Scint Te99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.460	+/-1.37	2.36	1.13	+/-1.37	5.00	pCi/g		MYM	01/11/16	0338	1534429	14

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	0843	1532296

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300.1-01 Modified
9	DOE HASL 300, 4.5.2.3/Ga-01-R
10	EPA 900.0/SW846 9310/SM 7110B Modified
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906.0 Modified
13	EPA EERF C-01 Modified

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Certificate of Analysis

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B,R.3.4
Sample ID: 387763019

Project: MJWC00115
Client ID: MJWC001

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1532467	81.3	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1532463	87.6	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1532463	79.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1532466	74.5	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1532462	88.1	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1532464	94.4	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1532468	81.3	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534449	84.6	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534429	91.8	(15%-125%)

Notes:

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

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Certificate of Analysis

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.5
 Sample ID: 387763020
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 16.6%

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		16.6						percent		LYT1	12/18/15	0843	1532296	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.0318	+/-0.0563	0.0853	0.0217	+/-0.0564	1.00	pCi/g		JXR1	01/11/16	1427	1532490	2
Plutonium-239/240	U	0.0112	+/-0.050	0.0978	0.028	+/-0.050	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.0149	+/-0.0503	0.131	0.0411	+/-0.0504	1.00	pCi/g		JXR1	01/11/16	1519	1532487	3
Uranium-233/234		0.545	+/-0.178	0.0804	0.0184	+/-0.199	1.00	pCi/g						
Uranium-235/236		0.0437	+/-0.0575	0.0437	0.00	+/-0.0579	1.00	pCi/g						
Uranium-238		0.606	+/-0.187	0.0696	0.013	+/-0.212	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0902	+/-0.302	0.726	0.260	+/-0.302	1.00	pCi/g		JXR1	01/11/16	0932	1532489	4
<i>Alphaspec Th229, 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.05	+/-0.579	0.613	0.211	+/-0.616	1.00	pCi/g		JXR1	01/12/16	1015	1532485	5
Thorium-229	U	-0.00737	+/-0.264	0.582	0.199	+/-0.264	1.00	pCi/g						
Thorium-230		0.880	+/-0.519	0.549	0.182	+/-0.546	1.00	pCi/g						
Thorium-232		0.415	+/-0.366	0.428	0.123	+/-0.375	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.0184	+/-0.0557	0.156	0.0398	+/-0.0558	1.00	pCi/g		JXR1	01/12/16	1457	1532488	6
Curium-242		0.0517	+/-0.102	0.141	0.0263	+/-0.102	1.00	pCi/g						
Curium-243/244	U	-0.0182	+/-0.055	0.155	0.0393	+/-0.0552	1.00	pCi/g						
Curium-245/246	U	-0.0141	+/-0.0622	0.162	0.0372	+/-0.0624	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-1.2	+/-5.81	10.4	4.93	+/-5.81	15.0	pCi/g		JXR1	01/14/16	1146	1532491	7
Rad Gamma Spec Analysis														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	UI	0.00	+/-0.874	0.618	0.280	+/-0.875	1.00	pCi/g		MJH1	01/12/16	1358	1533089	8
<i>Gammasespec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0489	+/-0.173	0.328	0.156	+/-0.175		pCi/g		RXF2	01/12/16	1106	1532303	9
Antimony-125	U	0.0365	+/-0.0615	0.120	0.0565	+/-0.0638		pCi/g						
Bismuth-212	UI	0.00	+/-0.562	0.857	0.405	+/-0.872		pCi/g						
Bismuth-214		0.754	+/-0.111	0.0779	0.0359	+/-0.129		pCi/g						
Cesium-137		0.174	+/-0.0521	0.0449	0.0207	+/-0.0542	0.100	pCi/g						
Cobalt-60	U	-0.0148	+/-0.0261	0.047	0.0208	+/-0.027		pCi/g						
Europium-154	U	0.020	+/-0.0826	0.162	0.0738	+/-0.0831		pCi/g						
Lead-212		0.768	+/-0.124	0.0842	0.0405	+/-0.139		pCi/g						
Lead-214		0.988	+/-0.123	0.0965	0.0456	+/-0.149		pCi/g						

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Certificate of Analysis

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 Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes
 Client Sample ID: 4.2B.R.3.5
 Sample ID: 387763020

Report Date: January 15, 2016

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, Solid "Dry Weight Corrected"</i>														
Potassium-40		12.9	+/-0.988	0.296	0.121	+/-1.47		pCi/g						
Protactinium-231	UI	0.00	+/-0.339	0.641	0.305	+/-0.426		pCi/g						
Radium-226		0.754	+/-0.111	0.0779	0.0359	+/-0.129		pCi/g						
Radium-228		0.870	+/-0.226	0.146	0.0654	+/-0.260		pCi/g						
Thallium-208		0.234	+/-0.0594	0.0403	0.0186	+/-0.0629		pCi/g						
U-126	UI	0.00	+/-0.060	0.123	0.0594	+/-0.0797		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		8.30	+/-3.22	3.96	1.68	+/-3.60	4.00	pCi/g		JXB7	01/11/16	1015	1534686	10
Beta		19.5	+/-2.97	3.33	1.56	+/-4.10	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.134	+/-0.681	1.36	0.590	+/-0.681	2.00	pCi/g		KSD1	01/06/16	1631	1534449	11
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium		2.20	+/-2.41	4.04	1.94	+/-2.41	6.00	pCi/g		TXJ1	01/07/16	0242	1533793	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.695	+/-0.756	1.33	0.650	+/-0.756	2.00	pCi/g		TXJ1	01/14/16	0113	1533786	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	-0.393	+/-1.49	2.64	1.27	+/-1.49	5.00	pCi/g		MYM	01/11/16	0354	1534429	14

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	0843	1532296

The following Analytical Methods were performed

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

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Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.5
 Sample ID: 387763020

Project: MJWC00115
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
14	DOE EML HASL-300, Te-02-RC Modified													
Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits										
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1532490	86.6	(15%-125%)										
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1532487	104	(15%-125%)										
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1532487	92.2	(15%-125%)										
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1532489	78.3	(15%-125%)										
Actinium-227 Tracer	Alphaspec Th229 + 228.230,232 Solid "Dry Weight Corrected"	1532485	88.1	(15%-125%)										
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1532488	46.9	(15%-125%)										
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1532491	86.6	(15%-125%)										
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534449	57.8	(25%-125%)										
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534429	93	(15%-125%)										

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: January 15, 2016

Client Sample ID: 4.2B.R.3.6
 Sample ID: 387769001
 Matrix: Soil
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 17%

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		17.0						percent		LYT1	12/18/15	1142	1532297	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	0.0158	+/-0.061	0.118	0.0371	+/-0.061	1.00	pCi/g		JXR1	01/11/16	1427	1532490	2
Plutonium-239/240	U	0.0117	+/-0.0524	0.103	0.0293	+/-0.0525	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.024	+/-0.0545	0.149	0.0486	+/-0.0546	1.00	pCi/g		JXR1	01/11/16	1519	1532487	3
Uranium-233/234		0.479	+/-0.176	0.119	0.0363	+/-0.194	1.00	pCi/g						
Uranium-235/236		0.0467	+/-0.0692	0.101	0.0275	+/-0.0696	1.00	pCi/g						
Uranium-238		0.482	+/-0.173	0.0847	0.0194	+/-0.191	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	0.124	+/-0.276	0.483	0.152	+/-0.276	1.00	pCi/g		JXR1	01/11/16	0932	1532489	4
<i>Alphaspec Th229 = 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		0.853	+/-0.468	0.452	0.145	+/-0.498	1.00	pCi/g		JXR1	01/12/16	1015	1532485	5
Thorium-229		0.0798	+/-0.183	0.291	0.0666	+/-0.184	1.00	pCi/g						
Thorium-230		0.932	+/-0.463	0.367	0.105	+/-0.497	1.00	pCi/g						
Thorium-232		0.980	+/-0.459	0.250	0.0469	+/-0.496	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.00393	+/-0.059	0.138	0.0395	+/-0.0591	1.00	pCi/g		JXR1	01/11/16	1427	1532488	6
Curium-242		0.0225	+/-0.0631	0.0674	0.00	+/-0.0632	1.00	pCi/g						
Curium-243/244		0.0194	+/-0.0547	0.0583	0.00	+/-0.0547	1.00	pCi/g						
Curium-245/246	U	0.0171	+/-0.0641	0.108	0.0202	+/-0.0642	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241		5.42	+/-5.28	8.81	4.22	+/-5.40	15.0	pCi/g		JXR1	01/13/16	0948	1532491	7
Rad Gamma Spec Analysis														
<i>Gamma I129, Solid "Dry Weight Corrected"</i>														
Iodine-129	UI	0.00	+/-1.07	0.424	0.184	+/-1.08	1.00	pCi/g		MJH1	01/12/16	1359	1533089	8
<i>Gammaspect, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0745	+/-0.205	0.395	0.187	+/-0.208		pCi/g		RXF2	01/12/16	0746	1532304	9
Antimony-125	U	0.0204	+/-0.0705	0.137	0.0638	+/-0.0711		pCi/g						
Bismuth-212	UI	0.00	+/-0.802	0.941	0.442	+/-0.911		pCi/g						
Bismuth-214		0.625	+/-0.116	0.106	0.0491	+/-0.127		pCi/g						
Cesium-137	UI	0.00	+/-0.0324	0.0698	0.0328	+/-0.0438	0.100	pCi/g						
Cobalt-60	U	0.00554	+/-0.0339	0.0569	0.0254	+/-0.034		pCi/g						
Europium-154	U	-0.057	+/-0.0934	0.165	0.074	+/-0.097		pCi/g						
Lead-212		0.903	+/-0.103	0.0873	0.0414	+/-0.126		pCi/g						

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Certificate of Analysis

Company : MJW Corporation
 Address : 15 Hazelwood Drive
 Suite 112
 Buffalo, New York 14228
 Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes
 Client Sample ID: 4.2B.R.3.6
 Sample ID: 387769001

Report Date: January 15, 2016

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, Solid "Dry Weight Corrected"</i>														
Lead-214		1.01	+/-0.144	0.0989	0.046	+/-0.166		pCi/g						
Potassium-40		14.4	+/-1.10	0.505	0.222	+/-1.66		pCi/g						
Protactinium-231	UI	0.00	+/-0.732	0.658	0.308	+/-0.746		pCi/g						
Radium-226		0.625	+/-0.116	0.106	0.0491	+/-0.127		pCi/g						
Radium-228		0.832	+/-0.234	0.200	0.0914	+/-0.269		pCi/g						
Thallium-208		0.276	+/-0.0576	0.0516	0.0239	+/-0.062		pCi/g						
Th-126	UI	0.00	+/-0.138	0.116	0.0552	+/-0.140		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		11.1	+/-3.28	3.90	1.72	+/-3.96	4.00	pCi/g		JXB7	01/07/16	1430	1534688	10
Beta		22.3	+/-2.46	2.59	1.23	+/-3.91	10.0	pCi/g						

GFPC, Sr90, solid "Dry Weight Corrected"

Strontium-90	U	-0.69	+/-0.914	1.82	0.829	+/-0.914	2.00	pCi/g		KSD1	01/07/16	1155	1534450	11
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Rad Liquid Scintillation Analysis

LSC, Tritium Dist, Solid "Dry Weight Corrected"

Tritium	U	0.441	+/-2.36	4.08	1.96	+/-2.36	6.00	pCi/g		TXJ1	01/07/16	0354	1533793	12
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Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.866	+/-0.763	1.35	0.659	+/-0.763	2.00	pCi/g		TXJ1	01/14/16	0215	1533786	13
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Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99		1.49	+/-1.54	2.58	1.24	+/-1.55	5.00	pCi/g		MYM	01/11/16	0411	1534429	14
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	1142	1532297

The following Analytical Methods were performed

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

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Certificate of Analysis

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.3.6
Sample ID: 387769001

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
13	EPA EERF C-01 Modified													
14	DOE EML HASL-300, Te-02-RC Modified													

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1532490	79.4	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1532487	94.6	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1532487	92.9	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1532489	103	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1532485	77.2	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1532488	56.3	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1532491	79.4	(15%-125%)
Strontium Carrier	GPPC, Sr90, solid "Dry Weight Corrected"	1534450	71.7	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534429	90.3	(15%-125%)

Notes:

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

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Certificate of Analysis

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

Report Date: January 14, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.3.7
 Sample ID: 387686003
 Matrix: Water
 Collect Date: 08-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client

Project: MJWC00115
 Client ID: MJWC001

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

Gamma spec, Gamma, Liquid (Standard List) "As Received"

Actinium-227	U	-11.7	+/-23.7	41.8	19.9	+/-24.3		pCi/L		MJH1	01/08/16	1529	1532831	1
Antimony-125	U	2.66	+/-8.02	14.8	6.94	+/-8.11		pCi/L						
Bismuth-212	U	-4.17	+/-59.3	90.7	42.2	+/-59.4		pCi/L						
Bismuth-214	U	4.13	+/-11.7	11.0	5.11	+/-11.7		pCi/L						
Cesium-137	U	1.28	+/-3.32	6.11	2.83	+/-3.37	10.0	pCi/L						
Cobalt-60	U	1.22	+/-3.61	6.24	2.78	+/-3.66		pCi/L						
Europium-154	U	-4.47	+/-8.37	14.5	6.31	+/-8.62		pCi/L						
Lead-212	U	1.59	+/-8.17	11.4	5.47	+/-8.20		pCi/L						
Lead-214	U	5.17	+/-11.1	14.1	6.73	+/-11.3		pCi/L						
Potassium-40	UI	0.00	+/-51.0	54.2	23.7	+/-51.1		pCi/L						
Protactinium-231	U	-7.89	+/-47.3	84.4	40.2	+/-47.5		pCi/L						
Radium-228	U	-18.6	+/-17.6	25.1	11.6	+/-19.7		pCi/L						
Thallium-208	U	-5.98	+/-4.80	6.36	2.97	+/-5.53		pCi/L						
Tin-126	U	-8.31	+/-9.33	13.2	6.32	+/-10.1		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-0.442	+/-1.79	3.95	1.60	+/-1.79	5.00	pCi/L		JXB7	01/05/16	1139	1533798	2
Beta	U	0.104	+/-2.55	4.69	2.13	+/-2.55	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

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.4.1
 Sample ID: 387769002
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 29.7%

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		29.7						percent		LYT1	12/18/15	1142	1532297	1
Rad Gamma Spec Analysis														
<i>Gammaspac, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0454	+/-0.339	0.549	0.257	+/-0.339		pCi/g		RXF2	01/12/16	0727	1532304	2
Antimony-125	UI	0.00	+/-0.108	0.219	0.102	+/-0.124		pCi/g						
Bismuth-212		1.44	+/-0.683	1.03	0.462	+/-0.699		pCi/g						
Bismuth-214		0.875	+/-0.148	0.158	0.0722	+/-0.165		pCi/g						
Cesium-137		0.816	+/-0.126	0.0871	0.0398	+/-0.143	0.100	pCi/g						
Cobalt-60	U	0.00593	+/-0.0426	0.0859	0.037	+/-0.0427		pCi/g						
Europium-154	U	-0.0432	+/-0.113	0.209	0.088	+/-0.114		pCi/g						
Lead-212		1.13	+/-0.132	0.121	0.0567	+/-0.171		pCi/g						
Lead-214		0.810	+/-0.206	0.176	0.0821	+/-0.218		pCi/g						
Potassium-40		16.7	+/-1.65	0.656	0.268	+/-2.22		pCi/g						
Protactinium-231	UI	0.00	+/-1.04	0.964	0.448	+/-1.05		pCi/g						
Radium-226		0.875	+/-0.148	0.158	0.0722	+/-0.165		pCi/g						
Radium-228	UI	0.00	+/-0.324	0.622	0.295	+/-0.576		pCi/g						
Thallium-208		0.278	+/-0.0689	0.0798	0.0365	+/-0.0727		pCi/g						
Tin-126	UI	0.00	+/-0.103	0.137	0.0655	+/-0.105		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		15.5	+/-3.90	3.00	1.16	+/-4.92	4.00	pCi/g		JXB7	01/07/16	1423	1534688	3
Beta		27.0	+/-3.03	3.15	1.49	+/-4.79	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	1142	1532297

The following Analytical Methods were performed

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

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

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.4.1
Sample ID: 387769002

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

Report Date: March 9, 2016

Contact: Ms. Lauric Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.4.2
 Sample ID: 392057005
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 24.1%

Project: MJWC00115
 Client ID: MJWC001

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

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	0.0379	+/-0.358	0.659	0.311	+/-0.358		pCi/g		MXR1	03/07/16	1044	1547922	1
Antimony-125	U	-0.0311	+/-0.164	0.286	0.134	+/-0.164		pCi/g						
Bismuth-212	UI	0.00	+/-0.728	1.60	0.745	+/-1.25		pCi/g						
Bismuth-214		1.13	+/-0.232	0.162	0.074	+/-0.253		pCi/g						
Cesium-137		2.94	+/-0.194	0.0802	0.0361	+/-0.333	0.100	pCi/g						
Cobalt-60	U	0.0273	+/-0.0419	0.0889	0.0379	+/-0.0437		pCi/g						
Europium-154	U	0.020	+/-0.134	0.270	0.117	+/-0.134		pCi/g						
Lead-212		1.24	+/-0.158	0.148	0.0701	+/-0.196		pCi/g						
Lead-214		1.01	+/-0.235	0.205	0.0965	+/-0.252		pCi/g						
Potassium-40		14.6	+/-1.60	0.819	0.346	+/-2.03		pCi/g						
Protactinium-231	UI	0.00	+/-0.936	1.36	0.644	+/-0.976		pCi/g						
Radium-226		1.13	+/-0.232	0.162	0.074	+/-0.253		pCi/g						
Radium-228		0.923	+/-0.396	0.270	0.118	+/-0.422		pCi/g						
Thallium-208		0.332	+/-0.0917	0.0877	0.0402	+/-0.0964		pCi/g						
Tin-126	UI	0.00	+/-0.151	0.207	0.0991	+/-0.153		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		16.5	+/-4.43	3.79	1.52	+/-5.48	4.00	pCi/g		BXF1	03/05/16	1617	1549866	2
Beta		29.5	+/-3.69	2.71	1.20	+/-5.49	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/26/16	1436	1547873

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4 5.2 3/Ga-01-R
2	EPA 900.0/SW846 9310/SM 7110B Modified

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

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.4.2
Sample ID: 392057005

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
 Suite 112
 Buffalo, New York 14228

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.5.1
 Sample ID: 387769003
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 17-DEC-15
 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		LYT1	12/18/15	1142	1532297	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	UI	0.00	+/-0.276	0.527	0.251	+/-0.307		pCi/g		RXF2	01/12/16	0746	1532304	2
Antimony-125	U	-0.0248	+/-0.109	0.196	0.0926	+/-0.110		pCi/g						
Bismuth-212	UI	0.00	+/-0.581	1.23	0.582	+/-0.840		pCi/g						
Bismuth-214		0.855	+/-0.160	0.143	0.0669	+/-0.176		pCi/g						
Cesium-137		1.63	+/-0.124	0.0747	0.0348	+/-0.188	0.100	pCi/g						
Cobalt-60	U	-0.0471	+/-0.0448	0.0739	0.0331	+/-0.0497		pCi/g						
Europium-154	U	0.0823	+/-0.136	0.259	0.119	+/-0.141		pCi/g						
Lead-212		1.19	+/-0.127	0.112	0.0533	+/-0.157		pCi/g						
Lead-214		0.903	+/-0.177	0.147	0.0693	+/-0.191		pCi/g						
Potassium-40		15.5	+/-1.31	0.540	0.232	+/-1.86		pCi/g						
Protactinium-231	UI	0.00	+/-0.816	0.977	0.464	+/-0.832		pCi/g						
Radium-226		0.855	+/-0.160	0.143	0.0669	+/-0.176		pCi/g						
Radium-228		0.900	+/-0.265	0.267	0.123	+/-0.281		pCi/g						
Thallium-208		0.369	+/-0.0962	0.0717	0.0335	+/-0.101		pCi/g						
Tin-126	UI	0.00	+/-0.129	0.162	0.0781	+/-0.130		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		11.7	+/-4.41	3.58	1.21	+/-4.91	4.00	pCi/g		JXB7	01/07/16	1423	1534688	3
Beta		19.5	+/-4.03	4.20	1.88	+/-4.70	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	1142	1532297

The following Analytical Methods were performed

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

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

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.5.1
Sample ID: 387769003

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

Report Date: March 9, 2016

Contact: Ms. Laurie Loscy
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.5.2
 Sample ID: 392057006
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 26.9%

Project: MJWC00115
 Client ID: MJWC001

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

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	0.114	+/-0.350	0.648	0.304	+/-0.354		pCi/g		MXR1	03/07/16	1044	1547922	1
Antimony-125	U	0.00333	+/-0.142	0.268	0.123	+/-0.142		pCi/g						
Bismuth-212	U	0.690	+/-1.19	1.76	0.810	+/-1.23		pCi/g						
Bismuth-214		0.915	+/-0.219	0.171	0.0767	+/-0.232		pCi/g						
Cesium-137		1.17	+/-0.171	0.0923	0.0411	+/-0.195	0.100	pCi/g						
Cobalt-60	U	-0.0252	+/-0.0531	0.0942	0.0389	+/-0.0543		pCi/g						
Europium-154	U	-0.0918	+/-0.186	0.325	0.140	+/-0.190		pCi/g						
Lead-212		1.13	+/-0.136	0.129	0.0606	+/-0.173		pCi/g						
Lead-214		1.00	+/-0.179	0.168	0.0769	+/-0.198		pCi/g						
Potassium-40		14.8	+/-1.86	0.778	0.308	+/-2.25		pCi/g						
Protactinium-231	UI	0.00	+/-0.653	1.28	0.597	+/-0.733		pCi/g						
Radium-226		0.915	+/-0.219	0.171	0.0767	+/-0.232		pCi/g						
Radium-228		0.845	+/-0.477	0.394	0.175	+/-0.488		pCi/g						
Thallium-208		0.334	+/-0.0843	0.0936	0.0423	+/-0.089		pCi/g						
Tin-126	UI	0.00	+/-0.118	0.113	0.0536	+/-0.119		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		19.2	+/-5.02	3.91	1.51	+/-6.24	4.00	pCi/g		BXF1	03/05/16	1618	1549866	2
Beta		22.4	+/-3.86	4.09	1.88	+/-4.97	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	02/26/16	1436	1547873

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery Test

Batch ID Recovery% Acceptable Limits

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Certificate of Analysis

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.5.2
Sample ID: 392057006

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.	
Surrrogate/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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Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.6.1
 Sample ID: 387769004
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 27.7%

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		27.7						percent		LYT1	12/18/15	1142	1532297	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.146	+/-0.377	0.672	0.315	+/-0.383		pCi/g		RXF2	01/12/16	0804	1532304	2
Antimony-125	U	0.107	+/-0.137	0.276	0.128	+/-0.145		pCi/g						
Bismuth-212	UI	0.00	+/-1.07	1.14	0.509	+/-1.07		pCi/g						
Bismuth-214		1.04	+/-0.176	0.174	0.079	+/-0.200		pCi/g						
Cesium-137		2.01	+/-0.173	0.0911	0.0409	+/-0.251	0.100	pCi/g						
Cobalt-60	U	-0.0061	+/-0.0475	0.0939	0.0397	+/-0.0476		pCi/g						
Europium-154	U	-0.0538	+/-0.156	0.281	0.121	+/-0.158		pCi/g						
Lead-212		1.24	+/-0.162	0.161	0.0761	+/-0.197		pCi/g						
Lead-214		1.29	+/-0.235	0.431	0.209	+/-0.262		pCi/g						
Potassium-40		15.5	+/-1.76	0.797	0.326	+/-2.20		pCi/g						
Protactinium-231	UI	0.00	+/-1.14	1.20	0.560	+/-1.15		pCi/g						
Radium-226		1.04	+/-0.176	0.174	0.079	+/-0.200		pCi/g						
Radium-228		1.16	+/-0.363	0.317	0.139	+/-0.404		pCi/g						
Thallium-208		0.296	+/-0.104	0.096	0.0438	+/-0.107		pCi/g						
Tm-126	U	0.0315	+/-0.193	0.246	0.118	+/-0.194		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		9.74	+/-3.39	3.91	1.65	+/-3.90	4.00	pCi/g		JXB7	01/07/16	1425	1534688	3
Beta		26.1	+/-3.04	3.04	1.42	+/-4.74	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	1142	1532297

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: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.6.1
Sample ID: 387769004

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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Company : MJW Technical Services
 Address : 15 Hazelwood Drive
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Report Date: March 9, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.6.2
 Sample ID: 392057007
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 21.1%

Project: MJWC00115
 Client ID: MJWC001

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

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	-0.138	+/-0.321	0.518	0.242	+/-0.328		pCi/g		MXR1	03/07/16	1045	1547922	1
Antimony-125	U	-0.034	+/-0.127	0.226	0.105	+/-0.128		pCi/g						
Bismuth-212	UI	0.00	+/-0.925	1.42	0.656	+/-1.17		pCi/g						
Bismuth-214		0.782	+/-0.180	0.149	0.0678	+/-0.193		pCi/g						
Cesium-137		0.968	+/-0.132	0.0795	0.0359	+/-0.158	0.100	pCi/g						
Cobalt-60	U	-0.00567	+/-0.0449	0.0879	0.0377	+/-0.045		pCi/g						
Europium-154	UI	0.00	+/-0.142	0.284	0.125	+/-0.155		pCi/g						
Lead-212		1.19	+/-0.181	0.182	0.0873	+/-0.211		pCi/g						
Lead-214		0.818	+/-0.201	0.153	0.071	+/-0.214		pCi/g						
Potassium-40		15.3	+/-1.69	0.642	0.259	+/-2.13		pCi/g						
Protactinium-231	UI	0.00	+/-1.02	0.812	0.372	+/-1.05		pCi/g						
Radium-226		0.782	+/-0.180	0.149	0.0678	+/-0.193		pCi/g						
Radium-228		0.910	+/-0.332	0.301	0.134	+/-0.362		pCi/g						
Thallium-208		0.265	+/-0.0842	0.0724	0.0328	+/-0.0875		pCi/g						
Tin-126	UI	0.00	+/-0.158	0.171	0.0813	+/-0.159		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		15.1	+/-4.12	3.96	1.64	+/-5.01	4.00	pCi/g		BXF1	03/05/16	1618	1549866	2
Beta		19.2	+/-2.59	2.39	1.10	+/-3.68	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/26/16	1436	1547873

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	EPA 900 0/SW846 9310/SM 7110B Modified

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

Surrogate/Tracer	Recovery	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.6.2
Sample ID: 392057007

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
 Suite 112
 Buffalo, New York 14228

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.7.1
 Sample ID: 387769005
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 28.4%

Project: MJWC00115
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lo	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		28.4						percent		LYT1	12/18/15	1142	1532297	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.122	+/-0.357	0.680	0.322	+/-0.361		pCi/g		RXF2	01/12/16	0804	1532304	2
Antimony-125	U	0.0625	+/-0.137	0.263	0.122	+/-0.140		pCi/g						
Bismuth-212	UI	0.00	+/-1.14	1.68	0.782	+/-1.49		pCi/g						
Bismuth-214		0.958	+/-0.208	0.172	0.0786	+/-0.223		pCi/g						
Cesium-137		0.873	+/-0.136	0.0988	0.0451	+/-0.153	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0445	0.104	0.0454	+/-0.050		pCi/g						
Europium-154	U	0.00285	+/-0.147	0.249	0.107	+/-0.147		pCi/g						
Lead-212		1.00	+/-0.147	0.137	0.0646	+/-0.167		pCi/g						
Lead-214		1.30	+/-0.200	0.398	0.193	+/-0.225		pCi/g						
Potassium-40		14.6	+/-1.77	0.977	0.423	+/-2.19		pCi/g						
Protactinium-231	UI	0.00	+/-1.24	1.07	0.495	+/-1.27		pCi/g						
Radium-226		0.958	+/-0.208	0.172	0.0786	+/-0.223		pCi/g						
Radium-228		1.19	+/-0.412	0.327	0.145	+/-0.440		pCi/g						
Thallium-208		0.441	+/-0.103	0.0865	0.0393	+/-0.109		pCi/g						
Tin-126	UI	0.00	+/-0.291	0.264	0.127	+/-0.292		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		17.2	+/-4.10	3.89	1.65	+/-5.33	4.00	pCi/g		JXB7	01/07/16	1422	1534688	3
Beta		25.1	+/-2.64	2.46	1.15	+/-4.31	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	1142	1532297

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4.5 2.3/Ga-01-R
3	EPA 900.0/SW846 9310/SM 7110B Modified

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

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.7.1
Sample ID: 387769005

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.7.2
 Sample ID: 392057008
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 21.7%

Project: MJWC00115
 Client ID: MJWC001

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

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	-0.228	+/-0.324	0.581	0.272	+/-0.342		pCi/g		MXR1	03/07/16	1045	1547922	1
Antimony-125	UI	0.00	+/-0.166	0.229	0.105	+/-0.181		pCi/g						
Bismuth-212	U	0.415	+/-0.770	1.35	0.620	+/-0.794		pCi/g						
Bismuth-214		0.913	+/-0.216	0.180	0.0828	+/-0.231		pCi/g						
Cesium-137		0.784	+/-0.108	0.0832	0.0374	+/-0.129	0.100	pCi/g						
Cobalt-60	U	-0.0366	+/-0.046	0.0767	0.0317	+/-0.049		pCi/g						
Europium-154	U	-0.106	+/-0.127	0.211	0.0876	+/-0.136		pCi/g						
Lead-212		1.12	+/-0.144	0.122	0.0574	+/-0.174		pCi/g						
Lead-214		1.16	+/-0.214	0.362	0.175	+/-0.237		pCi/g						
Potassium-40		15.9	+/-1.69	0.855	0.363	+/-2.17		pCi/g						
Protactinium-231	UI	0.00	+/-0.692	1.04	0.482	+/-0.708		pCi/g						
Radium-226		0.913	+/-0.216	0.180	0.0828	+/-0.231		pCi/g						
Radium-228		1.22	+/-0.257	0.304	0.134	+/-0.317		pCi/g						
Thallium-208		0.393	+/-0.110	0.0716	0.032	+/-0.116		pCi/g						
Tin-126	UI	0.00	+/-0.159	0.182	0.0864	+/-0.160		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		14.4	+/-4.50	3.98	1.53	+/-5.30	4.00	pCi/g		BXF1	03/07/16	1446	1549866	2
Beta		23.1	+/-3.59	3.49	1.60	+/-4.94	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/26/16	1436	1547873

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4 S.2.3/Ga-01-R
2	EPA 900 0/SW846 9310/SM 7110B Modified

Surrogate/Tracer Recovery Test

Batch ID Recovery% Acceptable Limits

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Certificate of Analysis

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.7.2
Sample ID: 392057008

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.8.1
 Sample ID: 387769006
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client
 Moisture: 24.8%

Project: MJWC00115
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lo	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		24.8						percent		LYT1	12/18/15	1142	1532297	1
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0369	+/-0.297	0.543	0.256	+/-0.298		pCi/g		RXP2	01/12/16	0832	1532304	2
Antimony-125	U	-0.0903	+/-0.119	0.198	0.092	+/-0.126		pCi/g						
Bismuth-212	UI	0.00	+/-1.17	1.36	0.633	+/-1.28		pCi/g						
Bismuth-214		0.852	+/-0.149	0.136	0.0619	+/-0.165		pCi/g						
Cesium-137		1.28	+/-0.124	0.0687	0.031	+/-0.164	0.100	pCi/g						
Cobalt-60	U	-0.0045	+/-0.0453	0.0863	0.0379	+/-0.0454		pCi/g						
Europium-154	U	0.0694	+/-0.126	0.262	0.117	+/-0.130		pCi/g						
Lead-212		1.01	+/-0.142	0.133	0.0631	+/-0.172		pCi/g						
Lead-214		0.956	+/-0.183	0.160	0.0748	+/-0.202		pCi/g						
Potassium-40		13.8	+/-1.49	0.587	0.240	+/-1.93		pCi/g						
Protactinium-231	U	0.217	+/-0.657	1.18	0.559	+/-0.667		pCi/g						
Radium-226		0.852	+/-0.149	0.136	0.0619	+/-0.165		pCi/g						
Radium-228		0.829	+/-0.299	0.238	0.105	+/-0.324		pCi/g						
Thallium-208		0.305	+/-0.0879	0.0671	0.0305	+/-0.0915		pCi/g						
Tin-126	UI	0.00	+/-0.115	0.155	0.0748	+/-0.116		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		18.7	+/-5.55	3.78	1.30	+/-6.61	4.00	pCi/g		JXB7	01/07/16	1423	1534688	3
Beta		22.5	+/-4.48	5.06	2.32	+/-5.48	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/18/15	1142	1532297

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300.4.5.2.3/Ga-01-R
3	EPA 900.0/SW846 9310/SM 7110B Modified

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

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

Report Date: January 15, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2B.R.8.1
Sample ID: 387769006

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.8.2
 Sample ID: 392057009
 Matrix: Soil
 Collect Date: 07-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 21.5%

Project: MJWC00115
 Client ID: MJWC001

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

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	-0.101	+/-0.324	0.590	0.278	+/-0.328		pCi/g		MXR1	03/07/16	1204	1547922	1
Antimony-125	U	0.035	+/-0.138	0.268	0.126	+/-0.139		pCi/g						
Bismuth-212		1.16	+/-0.667	1.06	0.476	+/-0.677		pCi/g						
Bismuth-214		0.891	+/-0.172	0.163	0.0745	+/-0.188		pCi/g						
Cesium-137		1.98	+/-0.168	0.0808	0.0365	+/-0.237	0.100	pCi/g						
Cobalt-60	U	0.0124	+/-0.0382	0.0818	0.0347	+/-0.0386		pCi/g						
Europium-154	U	-0.0196	+/-0.134	0.257	0.112	+/-0.135		pCi/g						
Lead-212		0.935	+/-0.195	0.164	0.0784	+/-0.211		pCi/g						
Lead-214		1.04	+/-0.218	0.358	0.173	+/-0.236		pCi/g						
Potassium-40		14.9	+/-1.65	0.850	0.364	+/-2.09		pCi/g						
Protactinium-231	UI	0.00	+/-0.640	1.31	0.618	+/-0.875		pCi/g						
Radium-226		0.891	+/-0.172	0.163	0.0745	+/-0.188		pCi/g						
Radium-228		0.930	+/-0.316	0.269	0.118	+/-0.345		pCi/g						
Thallium-208		0.357	+/-0.0953	0.0764	0.0347	+/-0.100		pCi/g						
Tin-126	UI	0.00	+/-0.173	0.185	0.0884	+/-0.174		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		17.0	+/-4.09	3.90	1.68	+/-5.40	4.00	pCi/g		BXF1	03/05/16	1623	1549866	2
Beta		63.9	+/-4.60	3.58	1.68	+/-10.0	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/26/16	1436	1547873

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4 5 2 3/Ga-01-R
2	EPA 900 0/SW846 9310/SM 7110B Modified

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

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

Report Date: March 9, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.8.2
Sample ID: 392057009

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
 Suite 112
 Buffalo, New York 14228

Report Date: January 14, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.8.5
 Sample ID: 387686005
 Matrix: Water
 Collect Date: 07-DEC-15
 Receive Date: 17-DEC-15
 Collector: Client

Project: MJWC00115
 Client ID: MJWC001

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

Gammasec, Gamma, Liquid (Standard List) "As Received"

Actinium-227	U	-16.5	+/-28.6	48.6	23.0	+/-29.7		pCi/L		MJH1	01/08/16	1530	1532831	1
Antimony-125	U	6.47	+/-10.5	19.2	9.04	+/-10.9		pCi/L						
Bismuth-212	U	-0.178	+/-68.5	98.6	45.5	+/-68.5		pCi/L						
Bismuth-214	U	2.25	+/-10.4	15.8	7.43	+/-10.5		pCi/L						
Cesium-137	U	2.02	+/-3.53	6.85	3.16	+/-3.65	10.0	pCi/L						
Cobalt-60	U	-0.284	+/-5.43	5.62	2.39	+/-5.43		pCi/L						
Europium-154	U	-1.27	+/-12.4	20.1	8.89	+/-12.4		pCi/L						
Lead-212	U	2.25	+/-8.37	12.8	6.15	+/-8.43		pCi/L						
Lead-214	U	-8.44	+/-10.6	15.1	7.15	+/-11.3		pCi/L						
Potassium-40	U	3.42	+/-59.2	98.7	45.1	+/-59.2		pCi/L						
Protactinium-231	U	4.05	+/-51.0	90.1	42.6	+/-51.1		pCi/L						
Radium-228	U	4.03	+/-16.4	27.4	12.5	+/-16.5		pCi/L						
Thallium-208	U	1.18	+/-4.95	7.86	3.68	+/-4.98		pCi/L						
Tin-126	U	-5.57	+/-9.46	15.4	7.34	+/-9.81		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha		1.14	+/-1.54	2.62	0.902	+/-1.55	5.00	pCi/L		JXB7	01/05/16	1139	1533798	2
Beta	U	0.700	+/-2.79	4.99	2.28	+/-2.79	5.00	pCi/L						

The following Analytical Methods were performed

Method	Description
1	EPA 901.1
2	EPA 900.0/SW846.9310

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

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

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: January 5, 2016

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

Client Sample ID: 4.2B.R.9.1 Project: MJWC00115
Sample ID: 386983008 Client ID: MJWC001
Matrix: Soil
Collect Date: 03-DEC-15 09:16
Receive Date: 08-DEC-15
Collector: Client
Moisture: 27.7%

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids											
ASTM D 2216 % Moisture "As Received"											
Moisture		27.7			percent		DRS1	12/09/15	1255	1529378	1
Rad Gamma Spec Analysis											
Gammasec, Gamma, Solid "Dry Weight Corrected"											
Actinium-227	U	0.110	0.587		pCi/g		RXF2	01/04/16	0743	1529716	2
Antimony-125	U	0.0416	0.224		pCi/g						
Bismuth-212	UI	0.00	1.56		pCi/g						
Bismuth-214		0.828	0.167		pCi/g						
Cesium-137		0.520	0.0926	0.100	pCi/g						
Cobalt-60	U	0.00728	0.096		pCi/g						
Europium-154	U	0.0363	0.337		pCi/g						
Lead-212		1.08	0.154		pCi/g						
Lead-214		1.26	0.370		pCi/g						
Potassium-40		14.0	0.668		pCi/g						
Protactinium-231	U	0.475	1.14		pCi/g						
Radium-226		0.828	0.167		pCi/g						
Radium-228		1.10	0.329		pCi/g						
Thallium-208		0.405	0.0715		pCi/g						
Tin-126	UI	0.00	0.143		pCi/g						
Rad Gas Flow Proportional Counting											
GFPC, Gross A/B, solid "Dry Weight Corrected"											
Alpha		12.1	3.85	4.00	pCi/g		KXB2	01/04/16	1241	1532749	3
Beta		22.6	2.28	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	DRS1	12/09/15	1255	1529378

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 71.10B Modified	

Notes:

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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

Report Date: March 8, 2016

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.9.2
 Sample ID: 392062015
 Matrix: Soil
 Collect Date: 03-DEC-15
 Receive Date: 25-FEB-16
 Collector: Client
 Moisture: 20%

Project: MJWC00115
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.0203	+/-0.264	0.501	0.237	+/-0.265		pCi/g		MXR1	03/07/16	1411	1547923	1
Antimony-125	U	0.0506	+/-0.122	0.228	0.107	+/-0.124		pCi/g						
Bismuth-212	UI	0.00	+/-0.882	1.17	0.545	+/-1.10		pCi/g						
Bismuth-214		0.857	+/-0.180	0.139	0.0646	+/-0.194		pCi/g						
Cesium-137		3.09	+/-0.182	0.0605	0.0273	+/-0.305	0.100	pCi/g						
Cobalt-60	U	-0.0119	+/-0.0326	0.0614	0.0262	+/-0.033		pCi/g						
Europium-154	UI	0.00	+/-0.0974	0.245	0.110	+/-0.162		pCi/g						
Lead-212		1.11	+/-0.122	0.113	0.0539	+/-0.160		pCi/g						
Lead-214		0.976	+/-0.198	0.148	0.0696	+/-0.214		pCi/g						
Potassium-40		13.9	+/-1.40	0.600	0.256	+/-1.85		pCi/g						
Protactinium-231	U	-0.377	+/-0.957	1.05	0.501	+/-0.976		pCi/g						
Radium-226		0.857	+/-0.180	0.139	0.0646	+/-0.194		pCi/g						
Radium-228		0.971	+/-0.305	0.231	0.103	+/-0.335		pCi/g						
Thallium-208		0.295	+/-0.0854	0.0724	0.0336	+/-0.0888		pCi/g						
Tin-126	UI	0.00	+/-0.107	0.115	0.055	+/-0.109		pCi/g						

Rad Gas Flow Proportional Counting
GFPC. Gross A.B. solid "Dry Weight Corrected"

Alpha		16.7	+/-3.89	3.68	1.57	+/-5.05	4.00	pCi/g		JXB7	03/02/16	1636	1548369	2
Beta		26.6	+/-3.12	3.58	1.71	+/-4.78	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	02/26/16	1449	1547874

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5 2 3/Ga-01-R
2	EPA 900 0/SW846 9310/SM 7110B Modified

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

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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

Report Date: March 8, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: 4.2.B.R.9.2
Sample ID: 392062015

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).