

Appendix G –
BGRD 2 – COA

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.1.1
Sample ID: 388119014
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 39.4%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	FPI	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216-% Moisture "As Received"</i>														
Moisture		39.4						percent		LYT1	12/28/15	1151	1533706	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	-0.0073	+/-0.0323	0.0843	0.0193	+/-0.0324	1.00	pCi/g		MXS2	01/12/16	1103	1534070	2
Plutonium-239/240	U	0.0195	+/-0.0536	0.0929	0.0236	+/-0.0536	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0228	+/-0.114	0.227	0.073	+/-0.114	1.00	pCi/g		MXS2	01/12/16	1024	1534063	3
Uranium-233/234		0.775	+/-0.411	0.368	0.113	+/-0.454	1.00	pCi/g						
Uranium-235/236	U	0.0495	+/-0.169	0.314	0.0855	+/-0.170	1.00	pCi/g						
Uranium-238		0.690	+/-0.374	0.263	0.0603	+/-0.412	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0585	+/-0.264	0.666	0.204	+/-0.265	1.00	pCi/g		MXS2	01/12/16	1032	1534069	4
<i>Alphaspec Th229, 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		0.584	+/-0.535	0.498	0.0948	+/-0.556	1.00	pCi/g		MXS2	01/12/16	1031	1534062	5
Thorium-229		0.00	+/-0.203	0.303	0.00	+/-0.205	1.00	pCi/g						
Thorium-230		0.733	+/-0.599	0.615	0.156	+/-0.627	1.00	pCi/g						
Thorium-232		1.20	+/-0.711	0.301	0.00	+/-0.771	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	-0.0317	+/-0.0399	0.133	0.0419	+/-0.040	1.00	pCi/g		MXS2	01/12/16	1031	1534067	6
Curium-242	U	0.0136	+/-0.051	0.0858	0.0161	+/-0.0511	1.00	pCi/g						
Curium-243/244	U	0.00457	+/-0.0477	0.0996	0.0253	+/-0.0478	1.00	pCi/g						
Curium-245/246		0.0287	+/-0.066	0.105	0.024	+/-0.0661	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-9.13	+/-6.96	12.5	6.09	+/-6.96	15.0	pCi/g		MXS2	01/14/16	2347	1534073	7
Rad Gamma Spec Analysis														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.0504	+/-0.472	0.928	0.374	+/-0.473	1.00	pCi/g		MJH1	01/20/16	1113	1536082	8
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.114	+/-0.379	0.685	0.321	+/-0.383		pCi/g		RXF2	01/20/16	0741	1534967	9
Antimony-125	U	0.107	+/-0.138	0.272	0.126	+/-0.146		pCi/g						
Bismuth-212	UI	0.00	+/-0.762	1.61	0.735	+/-0.904		pCi/g						
Bismuth-214		0.688	+/-0.199	0.200	0.0914	+/-0.207		pCi/g						
Cesium-137		0.769	+/-0.127	0.0823	0.0362	+/-0.141	0.100	pCi/g						
Cobalt-60	U	-0.0248	+/-0.0464	0.0807	0.0327	+/-0.0477		pCi/g						
Europium-154	U	-0.0558	+/-0.150	0.269	0.114	+/-0.152		pCi/g						
Lead-212		0.692	+/-0.128	0.140	0.0653	+/-0.140		pCi/g						
Lead-214		0.819	+/-0.193	0.393	0.189	+/-0.204		pCi/g						

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: BGA2.1.1
Sample ID: 388119014

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Potassium-40		6.78	+/-1.27	0.930	0.388	+/-1.40		pCi/g						
Protactinium-231	U	0.104	+/-0.747	1.28	0.597	+/-0.749		pCi/g						
Radium-226		0.688	+/-0.199	0.200	0.0914	+/-0.207		pCi/g						
Radium-228	UI	0.00	+/-0.248	0.546	0.252	+/-0.353		pCi/g						
Thallium-208		0.181	+/-0.115	0.092	0.0415	+/-0.116		pCi/g						
Tin-126	U	0.0534	+/-0.128	0.210	0.100	+/-0.131		pCi/g						
<i>Gamma spec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0573	+/-0.237	0.423	0.200	+/-0.239		pCi/g		MJH1	01/04/16	1555	1534344	10
Antimony-125	U	-0.0159	+/-0.0898	0.158	0.0734	+/-0.0901		pCi/g						
Bismuth-212	UI	0.00	+/-0.651	0.950	0.439	+/-0.917		pCi/g						
Bismuth-214		0.550	+/-0.116	0.108	0.0492	+/-0.126		pCi/g						
Cesium-137		0.646	+/-0.0907	0.0647	0.0297	+/-0.107	0.100	pCi/g						
Cobalt-60	U	-0.00335	+/-0.0336	0.0642	0.0279	+/-0.0336		pCi/g						
Europium-154	U	-0.0293	+/-0.090	0.167	0.0721	+/-0.091		pCi/g						
Lead-212		0.513	+/-0.0947	0.108	0.0518	+/-0.104		pCi/g						
Lead-214		0.618	+/-0.144	0.249	0.121	+/-0.153		pCi/g						
Potassium-40		6.95	+/-1.01	0.562	0.239	+/-1.17		pCi/g						
Protactinium-231	UI	0.00	+/-0.793	0.732	0.343	+/-0.840		pCi/g						
Radium-226		0.550	+/-0.116	0.108	0.0492	+/-0.126		pCi/g						
Radium-228	UI	0.00	+/-0.270	0.454	0.216	+/-0.454		pCi/g						
Thallium-208		0.158	+/-0.0635	0.0621	0.0287	+/-0.065		pCi/g						
Tin-126	UI	0.00	+/-0.0987	0.112	0.0533	+/-0.0994		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		9.23	+/-3.11	3.78	1.64	+/-3.60	4.00	pCi/g		JXB7	01/11/16	1627	1534817	11
Beta		15.0	+/-2.62	3.19	1.50	+/-3.35	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.638	+/-0.832	1.76	0.778	+/-0.832	2.00	pCi/g		KSD1	01/06/16	1657	1534788	12
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	0.867	+/-3.05	5.24	2.53	+/-3.05	6.00	pCi/g		TXJ1	01/12/16	0304	1534965	13
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.12	+/-1.00	1.72	0.845	+/-1.00	2.00	pCi/g		TXJ1	01/19/16	2119	1534966	14
<i>Liquid Scint Te99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	-0.715	+/-2.78	4.91	2.36	+/-2.78	5.00	pCi/g		MYM	01/19/16	0838	1534638	15

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYTT	12/28/15	1151	1533706

The following Analytical Methods were performed

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Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.1.1
Sample ID: 388119014

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 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	DOE HASL 300, 4.5 2.3/Ga-01-R
11	EPA 900.0/SW846 9310/SM 7110B Modified
12	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
13	EPA 906.0 Modified
14	EPA EERF C-01 Modified
15	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"	1534070	72.9	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	31.2	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	53	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1534069	81	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228.230.232 Solid "Dry Weight Corrected"	1534062	61.7	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1534067	93.6	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1534073	72.9	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534788	83.5	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534638	90.3	(15%-125%)

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Report Date: January 21, 2016

Client Sample ID: BGA2.1.1
Sample ID: 388119014

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).

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Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.1.2
Sample ID: 388119015
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 29%

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		29.0						percent		LYT1	12/28/15	1151	1533706	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.0727	+/-0.203	0.405	0.188	+/-0.206		pCi/g		RXF2	01/20/16	0746	1534967	2
Antimony-125	U	0.049	+/-0.0737	0.151	0.0687	+/-0.0771		pCi/g						
Bismuth-212		1.11	+/-0.730	0.748	0.327	+/-0.738		pCi/g						
Bismuth-214		0.697	+/-0.165	0.121	0.0546	+/-0.175		pCi/g						
Cesium-137	U	0.0238	+/-0.0366	0.0753	0.0343	+/-0.0382	0.100	pCi/g						
Cobalt-60	U	-0.0115	+/-0.0345	0.0643	0.0269	+/-0.0349		pCi/g						
Europium-154	U	0.0429	+/-0.0913	0.199	0.0851	+/-0.0934		pCi/g						
Lead-212		0.802	+/-0.106	0.079	0.0365	+/-0.152		pCi/g						
Lead-214		0.908	+/-0.141	0.105	0.0476	+/-0.166		pCi/g						
Potassium-40		8.30	+/-1.10	0.105	0.00	+/-1.33		pCi/g						
Protactinium-231	U	0.295	+/-0.576	0.789	0.365	+/-0.580		pCi/g						
Radium-226		0.697	+/-0.165	0.121	0.0546	+/-0.175		pCi/g						
Radium-228		0.880	+/-0.266	0.214	0.0923	+/-0.299		pCi/g						
Thallium-208		0.178	+/-0.0626	0.0582	0.026	+/-0.0644		pCi/g						
Tin-126	UI	0.00	+/-0.0828	0.0856	0.0406	+/-0.0846		pCi/g						
<i>Gammascpec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0855	+/-0.169	0.327	0.155	+/-0.174		pCi/g		MJH1	01/04/16	1555	1534344	3
Antimony-125	U	-0.023	+/-0.0617	0.108	0.0498	+/-0.0625		pCi/g						
Bismuth-212	UI	0.00	+/-0.394	0.782	0.363	+/-0.519		pCi/g						
Bismuth-214		0.622	+/-0.0988	0.0855	0.0392	+/-0.114		pCi/g						
Cesium-137		0.0421	+/-0.0404	0.0501	0.023	+/-0.0405	0.100	pCi/g						
Cobalt-60	U	0.000729	+/-0.0259	0.0511	0.0223	+/-0.0259		pCi/g						
Europium-154	U	-0.0571	+/-0.177	0.148	0.0648	+/-0.179		pCi/g						
Lead-212		0.814	+/-0.0842	0.075	0.0356	+/-0.112		pCi/g						
Lead-214		0.799	+/-0.130	0.218	0.106	+/-0.148		pCi/g						
Potassium-40		7.51	+/-0.844	0.402	0.168	+/-1.06		pCi/g						
Protactinium-231	UI	0.00	+/-0.407	0.737	0.350	+/-0.497		pCi/g						
Radium-226		0.622	+/-0.0988	0.0855	0.0392	+/-0.114		pCi/g						
Radium-228		0.719	+/-0.195	0.209	0.0957	+/-0.225		pCi/g						
Thallium-208		0.236	+/-0.0559	0.0392	0.0178	+/-0.0597		pCi/g						
Tin-126	UI	0.00	+/-0.0799	0.0968	0.0462	+/-0.0816		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC. Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		6.21	+/-2.78	3.75	1.62	+/-3.04	4.00	pCi/g		JXB7	01/11/16	1627	1534817	4
Beta		16.9	+/-2.73	3.25	1.53	+/-3.61	10.0	pCi/g						

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Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.1.2
Sample ID: 388119015

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	LYT1	12/28/15	1151	1533706

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4 S 2.3/Ga-01-R
3	DOE HASL 300, 4 S 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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Address : 15 Hazelwood Drive
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Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.1.3
Sample ID: 388119016
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 20.7%

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		20.7						percent		LYT1	12/28/15	1151	1533706	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.0587	+/-0.247	0.488	0.227	+/-0.249		pCi/g		RXF2	01/20/16	0746	1534967	2
Antimony-125	U	0.0904	+/-0.203	0.208	0.095	+/-0.207		pCi/g						
Bismuth-212	UI	0.00	+/-0.689	1.50	0.684	+/-0.808		pCi/g						
Bismuth-214		0.808	+/-0.216	0.148	0.0658	+/-0.226		pCi/g						
Cesium-137	U	-0.0157	+/-0.0492	0.0896	0.0401	+/-0.0497	0.100	pCi/g						
Cobalt-60	U	0.0456	+/-0.0544	0.122	0.0534	+/-0.0582		pCi/g						
Europium-154	U	0.0917	+/-0.179	0.373	0.165	+/-0.184		pCi/g						
Lead-212		1.01	+/-0.121	0.0941	0.0437	+/-0.165		pCi/g						
Lead-214		0.949	+/-0.185	0.163	0.0756	+/-0.203		pCi/g						
Potassium-40		11.4	+/-1.66	0.787	0.315	+/-1.96		pCi/g						
Protactinium-231	U	0.264	+/-0.603	1.06	0.493	+/-0.617		pCi/g						
Radium-226		0.808	+/-0.216	0.148	0.0658	+/-0.226		pCi/g						
Radium-228		0.783	+/-0.296	0.440	0.199	+/-0.312		pCi/g						
Thallium-208		0.225	+/-0.0966	0.0737	0.0327	+/-0.0984		pCi/g						
Tin-126	UI	0.00	+/-0.083	0.0788	0.0372	+/-0.0853		pCi/g						
<i>Gamma spec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.00612	+/-0.188	0.355	0.169	+/-0.188		pCi/g		MJH1	01/04/16	1555	1534344	3
Antimony-125	U	-0.0248	+/-0.0711	0.127	0.0594	+/-0.072		pCi/g						
Bismuth-212	UI	0.00	+/-0.642	0.979	0.464	+/-0.885		pCi/g						
Bismuth-214		0.737	+/-0.142	0.0964	0.045	+/-0.157		pCi/g						
Cesium-137	U	-0.00545	+/-0.0263	0.0487	0.0225	+/-0.0264	0.100	pCi/g						
Cobalt-60	U	0.0184	+/-0.0299	0.055	0.0246	+/-0.031		pCi/g						
Europium-154	U	0.00608	+/-0.102	0.166	0.0752	+/-0.102		pCi/g						
Lead-212		0.940	+/-0.0898	0.0733	0.0349	+/-0.122		pCi/g						
Lead-214		1.04	+/-0.143	0.0993	0.0468	+/-0.170		pCi/g						
Potassium-40		12.9	+/-1.06	0.430	0.186	+/-1.53		pCi/g						
Protactinium-231	UI	0.00	+/-0.526	0.599	0.283	+/-0.592		pCi/g						
Radium-226		0.737	+/-0.142	0.0964	0.045	+/-0.157		pCi/g						
Radium-228		0.860	+/-0.210	0.180	0.0821	+/-0.247		pCi/g						
Thallium-208		0.300	+/-0.0573	0.044	0.0203	+/-0.0633		pCi/g						
Tin-126	U	0.0496	+/-0.118	0.119	0.0574	+/-0.119		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		12.0	+/-3.16	3.81	1.71	+/-3.90	4.00	pCi/g		JXB7	01/11/16	1627	1534817	4
Beta		21.4	+/-2.56	2.74	1.30	+/-3.91	10.0	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

Report Date: January 21, 2016

Client Sample ID: BGA2.1.3
Sample ID: 388119016

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	LYTI	12/28/15	1151	1533706

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

Report Date: January 21, 2016

Client Sample ID: BGA2.1.4
Sample ID: 388119017
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 22%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPC	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		22.0						percent		LYT1	12/28/15	1151	1533706	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238	U	0.00414	+/-0.0471	0.100	0.0307	+/-0.0472	1.00	pCi/g		MXS2	01/12/16	1103	1534070	2
Plutonium-239/240		0.0357	+/-0.0514	0.062	0.0116	+/-0.0516	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0136	+/-0.0511	0.0859	0.0161	+/-0.0512	1.00	pCi/g		MXS2	01/12/16	1024	1534063	3
Uranium-233/234		1.01	+/-0.261	0.111	0.0303	+/-0.315	1.00	pCi/g						
Uranium-235/236		0.0508	+/-0.0668	0.0508	0.00	+/-0.0674	1.00	pCi/g						
Uranium-238		1.10	+/-0.271	0.103	0.0262	+/-0.332	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0358	+/-0.158	0.413	0.0946	+/-0.158	1.00	pCi/g		MXS2	01/12/16	1033	1534069	4
<i>Alphaspec Th229 - 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.06	+/-0.649	0.553	0.145	+/-0.693	1.00	pCi/g		MXS2	01/12/16	1031	1534062	5
Thorium-229		0.218	+/-0.346	0.478	0.110	+/-0.349	1.00	pCi/g						
Thorium-230		0.820	+/-0.565	0.477	0.109	+/-0.593	1.00	pCi/g						
Thorium-232		1.03	+/-0.608	0.258	0.00	+/-0.650	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241		0.0274	+/-0.063	0.0999	0.0229	+/-0.0631	1.00	pCi/g		MXS2	01/12/16	1031	1534067	6
Curium-242	U	-0.00469	+/-0.0405	0.0938	0.0175	+/-0.0406	1.00	pCi/g						
Curium-243/244	U	0.00926	+/-0.0515	0.0986	0.0226	+/-0.0515	1.00	pCi/g						
Curium-245/246		0.00	+/-0.0416	0.0619	0.00	+/-0.0417	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-6.29	+/-6.10	10.9	5.29	+/-6.10	15.0	pCi/g		MXS2	01/15/16	0038	1534073	7
Rad Gamma Spec Analysis														
<i>Gamma H129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.146	+/-0.331	0.621	0.220	+/-0.338	1.00	pCi/g		MJH1	01/20/16	1113	1536082	8
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0202	+/-0.292	0.536	0.253	+/-0.292		pCi/g		RXF2	01/20/16	0747	1534967	9
Antimony-125	U	-0.0796	+/-0.110	0.185	0.0851	+/-0.116		pCi/g						
Bismuth-212		1.80	+/-1.06	1.16	0.532	+/-1.07		pCi/g						
Bismuth-214		0.990	+/-0.189	0.140	0.0638	+/-0.205		pCi/g						
Cesium-137		0.0611	+/-0.0503	0.082	0.0376	+/-0.0505	0.100	pCi/g						
Cobalt-60	U	-0.0108	+/-0.0486	0.089	0.0393	+/-0.0488		pCi/g						
Europium-154	U	0.0959	+/-0.149	0.301	0.136	+/-0.156		pCi/g						
Lead-212		1.53	+/-0.140	0.108	0.051	+/-0.200		pCi/g						
Lead-214		1.46	+/-0.205	0.381	0.185	+/-0.239		pCi/g						

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Certificate of Analysis

Company : MJW Corporation
Address : 15 Hazelwood Drive
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Contact: Ms. Laurie Loscy
Project: Soil Radioisotopes

Client Sample ID: BGA2.1.4
Sample ID: 388119017

Report Date: January 21, 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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Rad Gamma Spec Analysis

Gamma with Ingrowth "Dry Weight Corrected"

Potassium-40		25.6	+/-1.94	0.651	0.274	+/-2.96		pCi/g						
Protactinium-231	UI	0.00	+/-0.857	0.983	0.461	+/-0.867		pCi/g						
Radium-226		0.990	+/-0.189	0.140	0.0638	+/-0.205		pCi/g						
Radium-228		1.08	+/-0.369	0.282	0.127	+/-0.400		pCi/g						
Thallium-208		0.355	+/-0.0809	0.0811	0.0375	+/-0.086		pCi/g						
Tin-126	UI	0.00	+/-0.142	0.172	0.0831	+/-0.149		pCi/g						

Gammascpec. Gamma. Solid "Dry Weight Corrected"

Actinium-227	U	-0.0441	+/-0.260	0.453	0.213	+/-0.261		pCi/g		MJH1	01/04/16	1557	1534344	10
Antimony-125	U	0.0373	+/-0.110	0.207	0.097	+/-0.111		pCi/g						
Bismuth-212	U	0.173	+/-0.908	1.54	0.724	+/-0.912		pCi/g						
Bismuth-214		1.24	+/-0.185	0.153	0.0707	+/-0.211		pCi/g						
Cesium-137	U	0.0037	+/-0.0503	0.0905	0.0419	+/-0.0504	0.100	pCi/g						
Cobalt-60	U	0.021	+/-0.0446	0.093	0.041	+/-0.0456		pCi/g						
Europium-154	U	0.0938	+/-0.143	0.297	0.134	+/-0.149		pCi/g						
Lead-212		1.36	+/-0.123	0.101	0.0477	+/-0.167		pCi/g						
Lead-214		1.10	+/-0.210	0.147	0.0689	+/-0.229		pCi/g						
Potassium-40		23.6	+/-2.02	0.777	0.332	+/-2.87		pCi/g						
Protactinium-231	U	0.437	+/-0.609	1.06	0.503	+/-0.647		pCi/g						
Radium-226		1.24	+/-0.185	0.153	0.0707	+/-0.211		pCi/g						
Radium-228		1.21	+/-0.378	0.336	0.153	+/-0.405		pCi/g						
Thallium-208		0.405	+/-0.0953	0.0723	0.0331	+/-0.101		pCi/g						
Tin-126	UI	0.00	+/-0.128	0.118	0.0565	+/-0.131		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		19.7	+/-3.82	2.43	0.954	+/-5.37	4.00	pCi/g		JXB7	01/11/16	1626	1534817	11
Beta		35.2	+/-3.16	2.74	1.29	+/-5.76	10.0	pCi/g						

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

Strontium-90	U	-0.758	+/-0.512	1.21	0.533	+/-0.512	2.00	pCi/g		KSD1	01/07/16	1130	1534788	12
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Rad Liquid Scintillation Analysis

LSC, Tritium Dist, Solid "Dry Weight Corrected"

Tritium	U	0.719	+/-2.35	4.03	1.95	+/-2.35	6.00	pCi/g		TXJ1	01/12/16	0508	1534965	13
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Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.537	+/-0.766	1.33	0.651	+/-0.766	2.00	pCi/g		TXJ1	01/19/16	2252	1534966	14
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Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	2.01	+/-2.78	4.71	2.26	+/-2.79	5.00	pCi/g		MYM	01/19/16	0855	1534638	15
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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	12/28/15	1151	1533706

The following Analytical Methods were performed

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Certificate of Analysis

Company : MJW Corporation
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Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.1.4
Sample ID: 388119017

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following 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	DOE HASL 300, 4.5.2 3/Ga-01-R
11	EPA 900.0/SW846 9310/SM 7110B Modified
12	EPA 905.0 Modified/DOE RPS01 Rev 1 Modified
13	EPA 906.0 Modified
14	EPA EERF C-01 Modified
15	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1534070	83.7	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	87.7	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	79.3	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1534069	84.7	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1534062	77.2	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1534067	79.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1534073	83.7	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534788	76	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534638	94.3	(15%-125%)

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Project: Soil Radioisotopes

Client Sample ID: BGA2.1.4
Sample ID: 388119017

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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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.1.5
Sample ID: 388119018
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 40.7%

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		40.7						percent		LYT1	12/28/15	1151	1533706	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.0599	+/-0.0706	0.0764	0.0143	+/-0.0711	1.00	pCi/g		MXS2	01/12/16	1103	1534070	2
Plutonium-239/240		0.0325	+/-0.0647	0.105	0.0286	+/-0.0648	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	-0.0535	+/-0.122	0.332	0.109	+/-0.122	1.00	pCi/g		MXS2	01/12/16	1024	1534063	3
Uranium-233/234		0.591	+/-0.273	0.0934	0.00	+/-0.304	1.00	pCi/g						
Uranium-235/236		0.0624	+/-0.107	0.0936	0.00	+/-0.108	1.00	pCi/g						
Uranium-238		1.02	+/-0.356	0.149	0.0279	+/-0.425	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	-0.0315	+/-0.271	0.629	0.118	+/-0.272	1.00	pCi/g		MXS2	01/12/16	1033	1534069	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		0.517	+/-0.497	0.600	0.167	+/-0.512	1.00	pCi/g		MXS2	01/12/16	1031	1534062	5
Thorium-229	U	0.0661	+/-0.248	0.417	0.078	+/-0.248	1.00	pCi/g						
Thorium-230		0.867	+/-0.565	0.260	0.00	+/-0.595	1.00	pCi/g						
Thorium-232		0.370	+/-0.423	0.528	0.134	+/-0.430	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241	U	0.00764	+/-0.0424	0.0814	0.0186	+/-0.0425	1.00	pCi/g		MXS2	01/13/16	1347	1534067	6
Curium-242		0.00	+/-0.0323	0.048	0.00	+/-0.0323	1.00	pCi/g						
Curium-243/244		0.0221	+/-0.0507	0.0804	0.0184	+/-0.0507	1.00	pCi/g						
Curium-245/246		0.0168	+/-0.0473	0.0504	0.00	+/-0.0473	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-4.32	+/-6.45	11.4	5.53	+/-6.45	15.0	pCi/g		MXS2	01/15/16	0242	1534073	7
Rad Gamma Spec Analysis														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.408	+/-0.472	0.670	0.212	+/-0.508	1.00	pCi/g		MJH1	01/20/16	1113	1536082	8
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	UI	0.00	+/-0.403	0.637	0.297	+/-0.447		pCi/g		RXF2	01/20/16	0747	1534967	9
Antimony-125	U	0.0668	+/-0.106	0.213	0.0965	+/-0.110		pCi/g						
Bismuth-212		1.23	+/-0.578	0.873	0.372	+/-0.592		pCi/g						
Bismuth-214		0.526	+/-0.153	0.153	0.0684	+/-0.160		pCi/g						
Cesium-137		0.865	+/-0.110	0.0589	0.0247	+/-0.133	0.100	pCi/g						
Cobalt-60	U	-0.019	+/-0.0344	0.0665	0.0258	+/-0.0355		pCi/g						
Europium-154	UI	0.00	+/-0.116	0.316	0.138	+/-0.157		pCi/g						
Lead-212		0.676	+/-0.120	0.123	0.0573	+/-0.132		pCi/g						
Lead-214		0.777	+/-0.187	0.171	0.0784	+/-0.198		pCi/g						

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.1.5
Sample ID: 388119018

Report Date: January 21, 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>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Potassium-40		6.88	+/-1.22	0.897	0.373	+/-1.35		pCi/g						
Protactinium-231	U	-0.0165	+/-0.551	0.997	0.457	+/-0.551		pCi/g						
Radium-226		0.526	+/-0.153	0.153	0.0684	+/-0.160		pCi/g						
Radium-228		0.593	+/-0.293	0.244	0.102	+/-0.306		pCi/g						
Thallium-208		0.225	+/-0.0615	0.0782	0.0348	+/-0.0646		pCi/g						
Tin-126	U	0.0714	+/-0.0922	0.172	0.0813	+/-0.0933		pCi/g						
<i>Gammascpec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0321	+/-0.235	0.440	0.203	+/-0.236		pCi/g		MJH1	01/05/16	0622	1534344	10
Antimony-125	U	-0.00271	+/-0.109	0.177	0.0802	+/-0.109		pCi/g						
Bismuth-212		0.570	+/-0.625	0.735	0.313	+/-0.627		pCi/g						
Bismuth-214		0.469	+/-0.170	0.138	0.0618	+/-0.174		pCi/g						
Cesium-137		0.850	+/-0.122	0.0792	0.0356	+/-0.139	0.100	pCi/g						
Cobalt-60	U	0.0168	+/-0.0342	0.0751	0.0316	+/-0.0351		pCi/g						
Europium-154	U	-0.0534	+/-0.120	0.211	0.0887	+/-0.122		pCi/g						
Lead-212		0.648	+/-0.104	0.100	0.0464	+/-0.117		pCi/g						
Lead-214		0.701	+/-0.140	0.153	0.0708	+/-0.151		pCi/g						
Potassium-40		6.75	+/-1.12	0.714	0.296	+/-1.27		pCi/g						
Protactinium-231	U	0.161	+/-0.517	0.962	0.446	+/-0.524		pCi/g						
Radium-226		0.469	+/-0.170	0.138	0.0618	+/-0.174		pCi/g						
Radium-228		0.753	+/-0.257	0.279	0.123	+/-0.277		pCi/g						
Thallium-208		0.210	+/-0.0766	0.0788	0.0358	+/-0.0785		pCi/g						
Tin-126	U	0.0453	+/-0.0905	0.149	0.0708	+/-0.0912		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		4.38	+/-2.43	3.62	1.61	+/-2.58	4.00	pCi/g		JXB7	01/11/16	1626	1534817	11
Beta		14.1	+/-2.54	3.31	1.57	+/-3.22	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.686	+/-0.653	1.41	0.628	+/-0.653	2.00	pCi/g		KSD1	01/06/16	1654	1534788	12
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	-0.806	+/-3.02	5.28	2.56	+/-3.02	6.00	pCi/g		TXJ1	01/12/16	1125	1534965	13
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.485	+/-1.02	1.76	0.866	+/-1.02	2.00	pCi/g		TXJ1	01/20/16	0025	1534966	14
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	0.839	+/-2.33	3.98	1.93	+/-2.33	5.00	pCi/g		MYM	01/19/16	1220	1534638	15

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1151	1533706

The following Analytical Methods were performed

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Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.1.5
Sample ID: 388119018

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 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	DOE HASL 300, 4.5.2.3/Ga-01-R
11	EPA 900.0/SW846 9310/SM 7110B Modified
12	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
13	EPA 906.0 Modified
14	EPA EERF C-01 Modified
15	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1534070	78	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	46.1	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1534063	42.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1534069	54.9	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1534062	81.4	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1534067	85.8	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1534073	78	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1534788	72.8	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1534638	93	(15%-125%)

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.1.5
Sample ID: 388119018

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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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 21, 2016

Client Sample ID: BGA2.1.6
Sample ID: 388121007
Matrix: Water
Collect Date: 21-DEC-15
Receive Date: 24-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

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

Actinium-227	U	-11.7	+/-28.8	49.4	23.4	+/-29.3		pCi/L		MJH1	01/11/16	0700	1532831	1
Antimony-125	U	6.50	+/-9.82	18.1	8.48	+/-10.3		pCi/L						
Bismuth-212	U	43.0	+/-51.7	102	47.0	+/-55.4		pCi/L						
Bismuth-214	UI	0.00	+/-14.7	15.9	7.50	+/-15.7		pCi/L						
Cesium-137	U	-0.165	+/-3.50	6.42	2.94	+/-3.50	10.0	pCi/L						
Cobalt-60	U	-1.18	+/-3.60	6.09	2.62	+/-3.64		pCi/L						
Europium-154	U	-0.889	+/-10.4	19.7	8.69	+/-10.4		pCi/L						
Lead-212	U	6.25	+/-13.6	13.1	6.28	+/-13.9		pCi/L						
Lead-214	U	5.16	+/-10.4	17.3	8.23	+/-10.7		pCi/L						
Potassium-40	U	19.7	+/-64.9	65.0	28.2	+/-65.0		pCi/L						
Protactinium-231	U	-15.1	+/-54.0	92.8	43.9	+/-54.5		pCi/L						
Radium-228	U	-0.994	+/-16.1	27.9	12.8	+/-16.2		pCi/L						
Thallium-208	U	2.84	+/-4.56	7.67	3.59	+/-4.74		pCi/L						
Tin-126	U	-0.907	+/-8.81	15.9	7.59	+/-8.82		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-1.01	+/-1.07	2.98	1.18	+/-1.07	5.00	pCi/L		JXB7	01/06/16	1558	1533844	2
Beta	U	-2.69	+/-2.41	4.84	2.23	+/-2.41	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

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

Report Date: January 21, 2016

Client Sample ID: BGA2.1.6
Sample ID: 388121007
Matrix: Water
Collect Date: 21-DEC-15
Receive Date: 24-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

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

Actinium-227	U	-11.7	+/-28.8	49.4	23.4	+/-29.3		pCi/L		MJH1	01/11/16	0700	1532831	1
Antimony-125	U	6.50	+/-9.82	18.1	8.48	+/-10.3		pCi/L						
Bismuth-212	U	43.0	+/-51.7	102	47.0	+/-55.4		pCi/L						
Bismuth-214	U	0.00	+/-14.7	15.9	7.50	+/-15.7		pCi/L						
Cesium-137	U	-0.165	+/-3.50	6.42	2.94	+/-3.50	10.0	pCi/L						
Cobalt-60	U	-1.18	+/-3.60	6.09	2.62	+/-3.64		pCi/L						
Europium-154	U	-0.889	+/-10.4	19.7	8.69	+/-10.4		pCi/L						
Lead-212	U	6.25	+/-13.6	13.1	6.28	+/-13.9		pCi/L						
Lead-214	U	5.16	+/-10.4	17.3	8.23	+/-10.7		pCi/L						
Potassium-40	U	19.7	+/-64.9	65.0	28.2	+/-65.0		pCi/L						
Protactinium-231	U	-15.1	+/-54.0	92.8	43.9	+/-54.5		pCi/L						
Radium-228	U	-0.994	+/-16.1	27.9	12.8	+/-16.2		pCi/L						
Thallium-208	U	2.84	+/-4.56	7.67	3.59	+/-4.74		pCi/L						
Tin-126	U	-0.907	+/-8.81	15.9	7.59	+/-8.82		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-1.01	+/-1.07	2.98	1.18	+/-1.07	5.00	pCi/L		JXB7	01/06/16	1558	1533844	2
Beta	U	-2.69	+/-2.41	4.84	2.23	+/-2.41	5.00	pCi/L						

The following Analytical Methods were performed

Method	Description
1	EPA 901.1
2	EPA 900 Q/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

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

Report Date: January 21, 2016

Client Sample ID: BGA2.2.1
Sample ID: 388119019
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 38.7%

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		38.7						percent		LYT1	12/28/15	1151	1533706	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.112	+/-0.409	0.710	0.329	+/-0.413		pCi/g		RXF2	01/20/16	0752	1534967	2
Antimony-125	U	-0.0293	+/-0.152	0.270	0.123	+/-0.153		pCi/g						
Bismuth-212	U	0.598	+/-1.34	1.89	0.867	+/-1.37		pCi/g						
Bismuth-214		0.871	+/-0.248	0.203	0.0913	+/-0.260		pCi/g						
Cesium-137		0.292	+/-0.114	0.102	0.0454	+/-0.117	0.100	pCi/g						
Cobalt-60	U	0.0223	+/-0.0647	0.134	0.058	+/-0.0655		pCi/g						
Europium-154	U	0.0458	+/-0.198	0.397	0.174	+/-0.199		pCi/g						
Lead-212		0.902	+/-0.195	0.217	0.103	+/-0.212		pCi/g						
Lead-214		0.839	+/-0.252	0.187	0.0851	+/-0.263		pCi/g						
Potassium-40		20.1	+/-2.44	1.18	0.499	+/-2.97		pCi/g						
Protactinium-231	UI	0.00	+/-0.946	1.33	0.612	+/-1.00		pCi/g						
Radium-226		0.871	+/-0.248	0.203	0.0913	+/-0.260		pCi/g						
Radium-228		1.05	+/-0.326	0.319	0.135	+/-0.358		pCi/g						
Thallium-208		0.395	+/-0.115	0.117	0.0534	+/-0.120		pCi/g						
Tin-126	U	0.027	+/-0.159	0.253	0.121	+/-0.159		pCi/g						
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.281	+/-0.398	0.756	0.354	+/-0.420		pCi/g		MJH1	01/05/16	0630	1534344	3
Antimony-125	U	-0.0738	+/-0.146	0.259	0.118	+/-0.150		pCi/g						
Bismuth-212		0.998	+/-1.00	1.49	0.671	+/-1.01		pCi/g						
Bismuth-214		0.892	+/-0.217	0.242	0.111	+/-0.230		pCi/g						
Cesium-137		0.323	+/-0.120	0.112	0.0508	+/-0.123	0.100	pCi/g						
Cobalt-60	U	0.0312	+/-0.0465	0.107	0.0449	+/-0.0486		pCi/g						
Europium-154	U	0.0121	+/-0.216	0.407	0.180	+/-0.216		pCi/g						
Lead-212		1.02	+/-0.156	0.167	0.0784	+/-0.184		pCi/g						
Lead-214		0.983	+/-0.250	0.202	0.0929	+/-0.265		pCi/g						
Potassium-40		17.4	+/-2.13	1.10	0.461	+/-2.60		pCi/g						
Protactinium-231	U	0.380	+/-0.777	1.40	0.654	+/-0.800		pCi/g						
Radium-226		0.892	+/-0.217	0.242	0.111	+/-0.230		pCi/g						
Radium-228		0.888	+/-0.362	0.430	0.192	+/-0.384		pCi/g						
Thallium-208		0.362	+/-0.103	0.0953	0.0428	+/-0.107		pCi/g						
Tin-126	UI	0.00	+/-0.136	0.249	0.120	+/-0.153		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A.B. solid "Dry Weight Corrected"</i>														
Alpha		13.0	+/-3.73	3.89	1.64	+/-4.50	4.00	pCi/g		JXB7	01/11/16	1627	1534817	4
Beta		29.4	+/-3.35	3.64	1.73	+/-5.29	10.0	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: BGA2.2.1
Sample ID: 388119019

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1151	1533706

The following Analytical Methods were performed

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

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.2.2
Sample ID: 388119020
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 37.3%

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		37.3						percent		LYT1	12/28/15	1151	1533706	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.247	+/-0.309	0.600	0.281	+/-0.330		pCi/g		RXP2	01/20/16	0752	1534967	2
Antimony-125	U	-0.0877	+/-0.124	0.206	0.094	+/-0.131		pCi/g						
Bismuth-212	UI	0.00	+/-0.774	1.45	0.665	+/-0.899		pCi/g						
Bismuth-214		1.13	+/-0.222	0.170	0.0774	+/-0.241		pCi/g						
Cesium-137		0.181	+/-0.0803	0.0989	0.0452	+/-0.0816	0.100	pCi/g						
Cobalt-60	U	0.0148	+/-0.0527	0.0945	0.0408	+/-0.0532		pCi/g						
Europium-154	U	-0.108	+/-0.185	0.263	0.114	+/-0.192		pCi/g						
Lead-212		1.18	+/-0.175	0.169	0.0804	+/-0.198		pCi/g						
Lead-214		1.07	+/-0.220	0.190	0.0888	+/-0.235		pCi/g						
Potassium-40		18.1	+/-1.79	0.730	0.301	+/-2.44		pCi/g						
Protactinium-231	UI	0.00	+/-0.706	1.18	0.552	+/-0.728		pCi/g						
Radium-226		1.13	+/-0.222	0.170	0.0774	+/-0.241		pCi/g						
Radium-228		1.25	+/-0.360	0.318	0.141	+/-0.398		pCi/g						
Thallium-208		0.412	+/-0.0854	0.083	0.0377	+/-0.092		pCi/g						
Tin-126	U	0.062	+/-0.219	0.205	0.0982	+/-0.220		pCi/g						
<i>Gammasespec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0141	+/-0.380	0.693	0.323	+/-0.380		pCi/g		MJH1	01/05/16	0630	1534344	3
Antimony-125	U	-0.0256	+/-0.135	0.250	0.114	+/-0.135		pCi/g						
Bismuth-212		1.24	+/-1.36	1.36	0.607	+/-1.36		pCi/g						
Bismuth-214		0.750	+/-0.214	0.183	0.0821	+/-0.225		pCi/g						
Cesium-137		0.192	+/-0.0717	0.103	0.0465	+/-0.0738	0.100	pCi/g						
Cobalt-60	U	0.0441	+/-0.0537	0.115	0.0495	+/-0.0574		pCi/g						
Europium-154	U	0.0371	+/-0.240	0.449	0.202	+/-0.240		pCi/g						
Lead-212		1.25	+/-0.165	0.156	0.0733	+/-0.200		pCi/g						
Lead-214		0.904	+/-0.266	0.214	0.0991	+/-0.278		pCi/g						
Potassium-40		19.5	+/-2.12	0.694	0.263	+/-2.69		pCi/g						
Protactinium-231	UI	0.00	+/-0.760	1.07	0.486	+/-0.785		pCi/g						
Radium-226		0.750	+/-0.214	0.183	0.0821	+/-0.225		pCi/g						
Radium-228		1.34	+/-0.421	0.395	0.175	+/-0.468		pCi/g						
Thallium-208		0.461	+/-0.104	0.0941	0.0423	+/-0.112		pCi/g						
Tin-126	UI	0.00	+/-0.156	0.230	0.110	+/-0.158		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A+B, solid "Dry Weight Corrected"</i>														
Alpha		13.9	+/-3.30	3.07	1.30	+/-4.26	4.00	pCi/g		JXB7	01/11/16	1626	1534817	4
Beta		17.4	+/-2.86	3.53	1.67	+/-3.77	10.0	pCi/g						

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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: January 21, 2016

Client Sample ID: BGA2.2.2
Sample ID: 388119020

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	LYT1	12/28/15	1151	1533706

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4.5.2 3/Ga-01-R
3	DOE HASL 300, 4.5.2 3/Ga-01-R
4	EPA 900 0/SW846 9310/SM 7110B Modified

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.3.1
Sample ID: 388121004
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 32.7%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RJ	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		32.7						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.0372	+/-0.321	0.608	0.285	+/-0.322		pCi/g		RXF2	01/20/16	0624	1534968	2
Antimony-125	U	0.0053	+/-0.116	0.219	0.100	+/-0.116		pCi/g						
Bismuth-212	UI	0.00	+/-0.685	1.37	0.627	+/-0.793		pCi/g						
Bismuth-214		0.765	+/-0.157	0.152	0.0683	+/-0.170		pCi/g						
Cesium-137		0.328	+/-0.0933	0.0929	0.0421	+/-0.0971	0.100	pCi/g						
Cobalt-60	U	0.0242	+/-0.0413	0.0913	0.0391	+/-0.0428		pCi/g						
Europium-154	U	-0.0709	+/-0.160	0.287	0.126	+/-0.164		pCi/g						
Lead-212		0.885	+/-0.139	0.138	0.0652	+/-0.156		pCi/g						
Lead-214		0.896	+/-0.217	0.178	0.0825	+/-0.228		pCi/g						
Potassium-40		12.4	+/-1.54	0.649	0.259	+/-1.88		pCi/g						
Protactinium-231	U	0.338	+/-0.673	1.20	0.561	+/-0.694		pCi/g						
Radium-226		0.765	+/-0.157	0.152	0.0683	+/-0.170		pCi/g						
Radium-228		0.556	+/-0.366	0.357	0.160	+/-0.373		pCi/g						
Thallium-208		0.295	+/-0.106	0.0872	0.0397	+/-0.109		pCi/g						
Tin-126	UI	0.00	+/-0.376	0.215	0.103	+/-0.378		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.00108	+/-0.299	0.564	0.262	+/-0.299		pCi/g		MJH1	01/05/16	0633	1534345	3
Antimony-125	U	0.0187	+/-0.112	0.210	0.0958	+/-0.112		pCi/g						
Bismuth-212		2.03	+/-0.748	1.11	0.493	+/-0.778		pCi/g						
Bismuth-214		0.876	+/-0.161	0.149	0.0666	+/-0.180		pCi/g						
Cesium-137		0.359	+/-0.0772	0.0565	0.0238	+/-0.0836	0.100	pCi/g						
Cobalt-60	U	-0.0388	+/-0.0387	0.0589	0.0226	+/-0.0426		pCi/g						
Europium-154	U	-0.00175	+/-0.134	0.263	0.113	+/-0.134		pCi/g						
Lead-212		0.984	+/-0.137	0.122	0.0568	+/-0.162		pCi/g						
Lead-214		1.09	+/-0.202	0.367	0.177	+/-0.224		pCi/g						
Potassium-40		12.8	+/-1.66	0.861	0.361	+/-1.99		pCi/g						
Protactinium-231	UI	0.00	+/-0.699	1.02	0.469	+/-0.741		pCi/g						
Radium-226		0.876	+/-0.161	0.149	0.0666	+/-0.180		pCi/g						
Radium-228		0.799	+/-0.303	0.292	0.127	+/-0.326		pCi/g						
Thallium-208		0.260	+/-0.102	0.0894	0.0407	+/-0.105		pCi/g						
Tin-126	UI	0.00	+/-0.137	0.197	0.0938	+/-0.138		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		11.9	+/-3.86	3.97	1.62	+/-4.49	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		21.4	+/-3.07	2.91	1.34	+/-4.37	10.0	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: BGA2.3.1
Sample ID: 388121004

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1146	1533707

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300.4 5.2 3/Ga-01-R
3	DOE HASL 300.4 5.2 3/Ga-01-R
4	EPA 900.0/SW846 9310/SM 7110B Modified

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

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

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Certificate of Analysis

Company : MJW Corporation
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Buffalo, New York 14228

Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.3.1
Sample ID: 388121004
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 32.7%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPC	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		32.7						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.0372	+/-0.321	0.608	0.285	+/-0.322		pCi/g		RXF2	01/20/16	0624	1534968	2
Antimony-125	U	0.0053	+/-0.116	0.219	0.100	+/-0.116		pCi/g						
Bismuth-212	UI	0.00	+/-0.685	1.37	0.627	+/-0.793		pCi/g						
Bismuth-214		0.765	+/-0.157	0.152	0.0683	+/-0.170		pCi/g						
Cesium-137		0.328	+/-0.0933	0.0929	0.0421	+/-0.0971	0.100	pCi/g						
Cobalt-60	U	0.0242	+/-0.0413	0.0913	0.0391	+/-0.0428		pCi/g						
Europium-154	U	-0.0709	+/-0.160	0.287	0.126	+/-0.164		pCi/g						
Lead-212		0.885	+/-0.139	0.138	0.0652	+/-0.156		pCi/g						
Lead-214		0.896	+/-0.217	0.178	0.0825	+/-0.228		pCi/g						
Potassium-40		12.4	+/-1.54	0.649	0.259	+/-1.88		pCi/g						
Protactinium-231	U	0.338	+/-0.673	1.20	0.561	+/-0.694		pCi/g						
Radium-226		0.765	+/-0.157	0.152	0.0683	+/-0.170		pCi/g						
Radium-228		0.556	+/-0.366	0.357	0.160	+/-0.373		pCi/g						
Thallium-208		0.295	+/-0.106	0.0872	0.0397	+/-0.109		pCi/g						
Tin-126	UI	0.00	+/-0.376	0.215	0.103	+/-0.378		pCi/g						
<i>Gammascpec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.00108	+/-0.299	0.564	0.262	+/-0.299		pCi/g		MJH1	01/05/16	0633	1534345	3
Antimony-125	U	0.0187	+/-0.112	0.210	0.0958	+/-0.112		pCi/g						
Bismuth-212		2.03	+/-0.748	1.11	0.493	+/-0.778		pCi/g						
Bismuth-214		0.876	+/-0.161	0.149	0.0666	+/-0.180		pCi/g						
Cesium-137		0.359	+/-0.0772	0.0565	0.0238	+/-0.0836	0.100	pCi/g						
Cobalt-60	U	-0.0388	+/-0.0387	0.0589	0.0226	+/-0.0426		pCi/g						
Europium-154	U	-0.00175	+/-0.134	0.263	0.113	+/-0.134		pCi/g						
Lead-212		0.984	+/-0.137	0.122	0.0568	+/-0.162		pCi/g						
Lead-214		1.09	+/-0.202	0.367	0.177	+/-0.224		pCi/g						
Potassium-40		12.8	+/-1.66	0.861	0.361	+/-1.99		pCi/g						
Protactinium-231	UI	0.00	+/-0.699	1.02	0.469	+/-0.741		pCi/g						
Radium-226		0.876	+/-0.161	0.149	0.0666	+/-0.180		pCi/g						
Radium-228		0.799	+/-0.303	0.292	0.127	+/-0.326		pCi/g						
Thallium-208		0.260	+/-0.102	0.0894	0.0407	+/-0.105		pCi/g						
Tin-126	UI	0.00	+/-0.137	0.197	0.0938	+/-0.138		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		11.9	+/-3.86	3.97	1.62	+/-4.49	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		21.4	+/-3.07	2.91	1.34	+/-4.37	10.0	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: BGA2.3.1
Sample ID: 388121004

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYTI	12/28/15	1146	1533707

The following Analytical Methods were performed

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

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.3.2
Sample ID: 388121005
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 27.5%

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		27.5						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0775	+/-0.263	0.476	0.222	+/-0.265		pCi/g		RXF2	01/20/16	0625	1534968	2
Antimony-125	U	0.0243	+/-0.0906	0.171	0.0784	+/-0.0912		pCi/g						
Bismuth-212		0.835	+/-0.657	0.835	0.371	+/-0.662		pCi/g						
Bismuth-214		0.918	+/-0.156	0.110	0.0489	+/-0.174		pCi/g						
Cesium-137		0.217	+/-0.0904	0.0654	0.0293	+/-0.0922	0.100	pCi/g						
Cobalt-60	U	-0.00721	+/-0.0411	0.0674	0.0284	+/-0.0413		pCi/g						
Europium-154	U	-0.0784	+/-0.125	0.219	0.0952	+/-0.130		pCi/g						
Lead-212		0.990	+/-0.119	0.107	0.0502	+/-0.153		pCi/g						
Lead-214		1.08	+/-0.187	0.144	0.0669	+/-0.210		pCi/g						
Potassium-40		14.0	+/-1.42	0.651	0.272	+/-1.88		pCi/g						
Protactinium-231	UI	0.00	+/-0.570	1.00	0.471	+/-0.619		pCi/g						
Radium-226		0.918	+/-0.156	0.110	0.0489	+/-0.174		pCi/g						
Radium-228		0.841	+/-0.206	0.177	0.0739	+/-0.241		pCi/g						
Thallium-208		0.362	+/-0.0776	0.0586	0.0262	+/-0.0834		pCi/g						
Tin-126	U	0.0595	+/-0.0951	0.144	0.0691	+/-0.0967		pCi/g						
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.00517	+/-0.245	0.466	0.217	+/-0.245		pCi/g		MJH1	01/05/16	0633	1534345	3
Antimony-125	U	-0.00452	+/-0.0846	0.158	0.0715	+/-0.0846		pCi/g						
Bismuth-212	UI	0.00	+/-0.783	0.901	0.400	+/-0.786		pCi/g						
Bismuth-214		0.735	+/-0.163	0.130	0.0584	+/-0.174		pCi/g						
Cesium-137		0.287	+/-0.0663	0.0767	0.0347	+/-0.0703	0.100	pCi/g						
Cobalt-60	U	0.0165	+/-0.0366	0.0796	0.034	+/-0.0373		pCi/g						
Europium-154	U	-0.0959	+/-0.111	0.187	0.0774	+/-0.119		pCi/g						
Lead-212		1.03	+/-0.116	0.0935	0.0434	+/-0.148		pCi/g						
Lead-214		1.05	+/-0.176	0.329	0.159	+/-0.197		pCi/g						
Potassium-40		12.7	+/-1.46	0.644	0.263	+/-1.84		pCi/g						
Protactinium-231	UI	0.00	+/-0.943	0.930	0.432	+/-0.973		pCi/g						
Radium-226		0.735	+/-0.163	0.130	0.0584	+/-0.174		pCi/g						
Radium-228		1.02	+/-0.263	0.301	0.134	+/-0.305		pCi/g						
Thallium-208		0.225	+/-0.0914	0.0657	0.0295	+/-0.0933		pCi/g						
Tin-126	UI	0.00	+/-0.0994	0.123	0.058	+/-0.101		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A+B, solid "Dry Weight Corrected"</i>														
Alpha		5.20	+/-2.84	3.85	1.59	+/-3.01	4.00	pCi/g		KXB2	01/12/16	0732	1534818	4
Beta		17.3	+/-2.80	2.62	1.18	+/-3.73	10.0	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: BGA2.3.2
Sample ID: 388121005

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1146	1533707

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4.5.2 3/Ga-01-R
3	DOE HASL 300, 4.5.2 3/Ga-01-R
4	EPA 900.0/SW846 9310/SM 7110B Modified

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.3.2
Sample ID: 388121005
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 27.5%

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		27.5						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0775	+/-0.263	0.476	0.222	+/-0.265		pCi/g		RXF2	01/20/16	0625	1534968	2
Antimony-125	U	0.0243	+/-0.0906	0.171	0.0784	+/-0.0912		pCi/g						
Bismuth-212		0.835	+/-0.657	0.835	0.371	+/-0.662		pCi/g						
Bismuth-214		0.918	+/-0.156	0.110	0.0489	+/-0.174		pCi/g						
Cesium-137		0.217	+/-0.0904	0.0654	0.0293	+/-0.0922	0.100	pCi/g						
Cobalt-60	U	-0.00721	+/-0.0411	0.0674	0.0284	+/-0.0413		pCi/g						
Europium-154	U	-0.0784	+/-0.125	0.219	0.0952	+/-0.130		pCi/g						
Lead-212		0.990	+/-0.119	0.107	0.0502	+/-0.153		pCi/g						
Lead-214		1.08	+/-0.187	0.144	0.0669	+/-0.210		pCi/g						
Potassium-40		14.0	+/-1.42	0.651	0.272	+/-1.88		pCi/g						
Protactinium-231	UI	0.00	+/-0.570	1.00	0.471	+/-0.619		pCi/g						
Radium-226		0.918	+/-0.156	0.110	0.0489	+/-0.174		pCi/g						
Radium-228		0.841	+/-0.206	0.177	0.0739	+/-0.241		pCi/g						
Thallium-208		0.362	+/-0.0776	0.0586	0.0262	+/-0.0834		pCi/g						
Tin-126	U	0.0595	+/-0.0951	0.144	0.0691	+/-0.0967		pCi/g						
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.00517	+/-0.245	0.466	0.217	+/-0.245		pCi/g		MJH1	01/05/16	0633	1534345	3
Antimony-125	U	-0.00452	+/-0.0846	0.158	0.0715	+/-0.0846		pCi/g						
Bismuth-212	UI	0.00	+/-0.783	0.901	0.400	+/-0.786		pCi/g						
Bismuth-214		0.735	+/-0.163	0.130	0.0584	+/-0.174		pCi/g						
Cesium-137		0.287	+/-0.0663	0.0767	0.0347	+/-0.0703	0.100	pCi/g						
Cobalt-60	U	0.0165	+/-0.0366	0.0796	0.034	+/-0.0373		pCi/g						
Europium-154	U	-0.0959	+/-0.111	0.187	0.0774	+/-0.119		pCi/g						
Lead-212		1.03	+/-0.116	0.0935	0.0434	+/-0.148		pCi/g						
Lead-214		1.05	+/-0.176	0.329	0.159	+/-0.197		pCi/g						
Potassium-40		12.7	+/-1.46	0.644	0.263	+/-1.84		pCi/g						
Protactinium-231	UI	0.00	+/-0.943	0.930	0.432	+/-0.973		pCi/g						
Radium-226		0.735	+/-0.163	0.130	0.0584	+/-0.174		pCi/g						
Radium-228		1.02	+/-0.263	0.301	0.134	+/-0.305		pCi/g						
Thallium-208		0.225	+/-0.0914	0.0657	0.0295	+/-0.0933		pCi/g						
Tin-126	UI	0.00	+/-0.0994	0.123	0.058	+/-0.101		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A+B, solid "Dry Weight Corrected"</i>														
Alpha		5.20	+/-2.84	3.85	1.59	+/-3.01	4.00	pCi/g		KXB2	01/12/16	0732	1534818	4
Beta		17.3	+/-2.80	2.62	1.18	+/-3.73	10.0	pCi/g						

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.3.2
Sample ID: 388121005

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	LYT1	12/28/15	1146	1533707

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4 5 2 3/Ga-01-R
3	DOE HASL 300, 4 5 2.3/Ga-01-R
4	EPA 900 0/SW846 9310/SM 7110B Modified

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.4.1
Sample ID: 388121006
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 36.4%

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		36.4						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.00457	+/-0.297	0.539	0.252	+/-0.297		pCi/g		RXF2	01/20/16	0636	1534968	2
Antimony-125	U	0.0689	+/-0.111	0.220	0.102	+/-0.116		pCi/g						
Bismuth-212	U	0.619	+/-0.674	1.39	0.637	+/-0.732		pCi/g						
Bismuth-214		0.851	+/-0.159	0.130	0.0579	+/-0.175		pCi/g						
Cesium-137		0.279	+/-0.103	0.0909	0.0413	+/-0.106	0.100	pCi/g						
Cobalt-60	U	-0.00501	+/-0.0478	0.0922	0.0394	+/-0.0479		pCi/g						
Europium-154	U	0.0601	+/-0.161	0.324	0.144	+/-0.163		pCi/g						
Lead-212		0.835	+/-0.111	0.108	0.0504	+/-0.151		pCi/g						
Lead-214		0.835	+/-0.186	0.146	0.0671	+/-0.199		pCi/g						
Potassium-40		11.8	+/-1.58	0.444	0.155	+/-1.95		pCi/g						
Protactinium-231	UI	0.00	+/-0.583	0.963	0.447	+/-0.596		pCi/g						
Radium-226		0.851	+/-0.159	0.130	0.0579	+/-0.175		pCi/g						
Radium-228		0.664	+/-0.346	0.255	0.109	+/-0.357		pCi/g						
Thallium-208		0.275	+/-0.085	0.0737	0.0331	+/-0.0881		pCi/g						
Tin-126	UI	0.00	+/-0.112	0.0927	0.0439	+/-0.113		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0778	+/-0.269	0.495	0.227	+/-0.271		pCi/g		MJH1	01/05/16	0642	1534345	3
Antimony-125	U	0.0537	+/-0.121	0.244	0.111	+/-0.124		pCi/g						
Bismuth-212	UI	0.00	+/-0.702	1.53	0.681	+/-0.779		pCi/g						
Bismuth-214		0.561	+/-0.228	0.223	0.101	+/-0.233		pCi/g						
Cesium-137		0.293	+/-0.105	0.102	0.0454	+/-0.107	0.100	pCi/g						
Cobalt-60	U	0.00712	+/-0.0619	0.126	0.0533	+/-0.062		pCi/g						
Europium-154	U	-0.0744	+/-0.163	0.298	0.122	+/-0.166		pCi/g						
Lead-212		0.776	+/-0.115	0.116	0.0538	+/-0.143		pCi/g						
Lead-214		0.912	+/-0.221	0.372	0.179	+/-0.235		pCi/g						
Potassium-40		13.0	+/-1.87	1.51	0.656	+/-2.21		pCi/g						
Protactinium-231	UI	0.00	+/-0.876	0.897	0.406	+/-0.935		pCi/g						
Radium-226		0.561	+/-0.228	0.223	0.101	+/-0.233		pCi/g						
Radium-228		0.716	+/-0.331	0.290	0.119	+/-0.344		pCi/g						
Thallium-208		0.208	+/-0.0856	0.106	0.0478	+/-0.0874		pCi/g						
Tin-126	UI	0.00	+/-0.0798	0.0849	0.0398	+/-0.0814		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A+B, solid "Dry Weight Corrected"</i>														
Alpha		12.5	+/-3.50	3.90	1.70	+/-4.25	4.00	pCi/g		KXB2	01/12/16	0732	1534818	4
Beta		23.6	+/-3.45	4.02	1.91	+/-4.96	10.0	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

Report Date: January 21, 2016

Client Sample ID: BGA2.4.1
Sample ID: 388121006

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1146	1533707

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300.4 S 2.3/Ga-01-R
3	DOE HASL 300.4 S 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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Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.4.1
Sample ID: 388121006
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 36.4%

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		36.4						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.00457	+/-0.297	0.539	0.252	+/-0.297		pCi/g		RXF2	01/20/16	0636	1534968	2
Antimony-125	U	0.0689	+/-0.111	0.220	0.102	+/-0.116		pCi/g						
Bismuth-212	U	0.619	+/-0.674	1.39	0.637	+/-0.732		pCi/g						
Bismuth-214		0.851	+/-0.159	0.130	0.0579	+/-0.175		pCi/g						
Cesium-137		0.279	+/-0.103	0.0909	0.0413	+/-0.106	0.100	pCi/g						
Cobalt-60	U	-0.00501	+/-0.0478	0.0922	0.0394	+/-0.0479		pCi/g						
Europium-154	U	0.0601	+/-0.161	0.324	0.144	+/-0.163		pCi/g						
Lead-212		0.835	+/-0.111	0.108	0.0504	+/-0.151		pCi/g						
Lead-214		0.835	+/-0.186	0.146	0.0671	+/-0.199		pCi/g						
Potassium-40		11.8	+/-1.58	0.444	0.155	+/-1.95		pCi/g						
Protactinium-231	UI	0.00	+/-0.583	0.963	0.447	+/-0.596		pCi/g						
Radium-226		0.851	+/-0.159	0.130	0.0579	+/-0.175		pCi/g						
Radium-228		0.664	+/-0.346	0.255	0.109	+/-0.357		pCi/g						
Thallium-208		0.275	+/-0.085	0.0737	0.0331	+/-0.0881		pCi/g						
Tin-126	UI	0.00	+/-0.112	0.0927	0.0439	+/-0.113		pCi/g						
<i>Gammasec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.0778	+/-0.269	0.495	0.227	+/-0.271		pCi/g		MJH1	01/05/16	0642	1534345	3
Antimony-125	U	0.0537	+/-0.121	0.244	0.111	+/-0.124		pCi/g						
Bismuth-212	UI	0.00	+/-0.702	1.53	0.681	+/-0.779		pCi/g						
Bismuth-214		0.561	+/-0.228	0.223	0.101	+/-0.233		pCi/g						
Cesium-137		0.293	+/-0.105	0.102	0.0454	+/-0.107	0.100	pCi/g						
Cobalt-60	U	0.00712	+/-0.0619	0.126	0.0533	+/-0.062		pCi/g						
Europium-154	U	-0.0744	+/-0.163	0.298	0.122	+/-0.166		pCi/g						
Lead-212		0.776	+/-0.115	0.116	0.0538	+/-0.143		pCi/g						
Lead-214		0.912	+/-0.221	0.372	0.179	+/-0.235		pCi/g						
Potassium-40		13.0	+/-1.87	1.51	0.656	+/-2.21		pCi/g						
Protactinium-231	UI	0.00	+/-0.876	0.897	0.406	+/-0.935		pCi/g						
Radium-226		0.561	+/-0.228	0.223	0.101	+/-0.233		pCi/g						
Radium-228		0.716	+/-0.331	0.290	0.119	+/-0.344		pCi/g						
Thallium-208		0.208	+/-0.0856	0.106	0.0478	+/-0.0874		pCi/g						
Tin-126	UI	0.00	+/-0.0798	0.0849	0.0398	+/-0.0814		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		12.5	+/-3.50	3.90	1.70	+/-4.25	4.00	pCi/g		KXB2	01/12/16	0732	1534818	4
Beta		23.6	+/-3.45	4.02	1.91	+/-4.96	10.0	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

Report Date: January 21, 2016

Client Sample ID: BGA2.4.1
Sample ID: 388121006

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1146	1533707

The following Analytical Methods were performed

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

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.4.2
Sample ID: 388121001
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 31.9%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		31.9						percent		LYT1	12/28/15	1146	1533707	1
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Rad Gamma Spec Analysis

Gamma with Ingrowth "Dry Weight Corrected"

Actinium-227	U	0.167	+/-0.247	0.478	0.225	+/-0.259		pCi/g		RXF2	01/20/16	0614	1534968	2
Antimony-125	U	0.0192	+/-0.091	0.177	0.082	+/-0.0914		pCi/g						
Bismuth-212	UI	0.00	+/-0.628	1.02	0.466	+/-0.759		pCi/g						
Bismuth-214		0.516	+/-0.144	0.123	0.0558	+/-0.150		pCi/g						
Cesium-137		0.255	+/-0.0656	0.0605	0.0271	+/-0.0686	0.100	pCi/g						
Cobalt-60	U	-0.00105	+/-0.0322	0.0629	0.0267	+/-0.0322		pCi/g						
Europium-154	U	-0.0762	+/-0.105	0.179	0.0766	+/-0.110		pCi/g						
Lead-212		0.926	+/-0.117	0.0967	0.0454	+/-0.143		pCi/g						
Lead-214		0.793	+/-0.194	0.129	0.0597	+/-0.205		pCi/g						
Potassium-40		12.1	+/-1.42	0.588	0.247	+/-1.77		pCi/g						
Protactinium-231	UI	0.00	+/-0.803	0.910	0.427	+/-0.830		pCi/g						
Radium-226		0.516	+/-0.144	0.123	0.0558	+/-0.150		pCi/g						
Radium-228		0.723	+/-0.246	0.235	0.104	+/-0.266		pCi/g						
Thallium-208		0.193	+/-0.0628	0.0574	0.0259	+/-0.0648		pCi/g						
Tin-126	UI	0.00	+/-0.0836	0.141	0.0678	+/-0.140		pCi/g						

Gamma spec. Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.000969	+/-0.269	0.511	0.238	+/-0.269		pCi/g		MJH1	01/05/16	0618	1534345	3
Antimony-125	U	0.037	+/-0.101	0.198	0.0902	+/-0.103		pCi/g						
Bismuth-212	UI	0.00	+/-0.827	1.37	0.627	+/-0.955		pCi/g						
Bismuth-214		0.671	+/-0.168	0.149	0.067	+/-0.177		pCi/g						
Cesium-137		0.291	+/-0.0772	0.0898	0.0407	+/-0.0807	0.100	pCi/g						
Cobalt-60	U	-0.00111	+/-0.0367	0.0757	0.0314	+/-0.0367		pCi/g						
Europium-154	U	-0.0484	+/-0.120	0.227	0.0958	+/-0.122		pCi/g						
Lead-212		0.725	+/-0.154	0.140	0.0662	+/-0.165		pCi/g						
Lead-214		0.905	+/-0.189	0.328	0.158	+/-0.201		pCi/g						
Potassium-40		11.9	+/-1.49	0.826	0.348	+/-1.91		pCi/g						
Protactinium-231	U	0.274	+/-0.601	1.05	0.487	+/-0.617		pCi/g						
Radium-226		0.671	+/-0.168	0.149	0.067	+/-0.177		pCi/g						
Radium-228		0.599	+/-0.271	0.326	0.145	+/-0.281		pCi/g						
Thallium-208		0.236	+/-0.0736	0.0718	0.0321	+/-0.0762		pCi/g						
Tin-126	U	0.011	+/-0.109	0.191	0.0913	+/-0.110		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		10.0	+/-3.36	3.88	1.66	+/-3.88	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		20.1	+/-2.90	2.83	1.30	+/-4.08	10.0	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: BGA2.4.2
Sample ID: 388121001

Report Date: January 21, 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	LYT1	12/28/15	1146	1533707

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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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.4.2
Sample ID: 388121001
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 31.9%

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		31.9						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.167	+/-0.247	0.478	0.225	+/-0.259		pCi/g		RXF2	01/20/16	0614	1534968	2
Antimony-125	U	0.0192	+/-0.091	0.177	0.082	+/-0.0914		pCi/g						
Bismuth-212	UI	0.00	+/-0.628	1.02	0.466	+/-0.759		pCi/g						
Bismuth-214		0.516	+/-0.144	0.123	0.0558	+/-0.150		pCi/g						
Cesium-137		0.255	+/-0.0656	0.0605	0.0271	+/-0.0686	0.100	pCi/g						
Cobalt-60	U	-0.00105	+/-0.0322	0.0629	0.0267	+/-0.0322		pCi/g						
Europium-154	U	-0.0762	+/-0.105	0.179	0.0766	+/-0.110		pCi/g						
Lead-212		0.926	+/-0.117	0.0967	0.0454	+/-0.143		pCi/g						
Lead-214		0.793	+/-0.194	0.129	0.0597	+/-0.205		pCi/g						
Potassium-40		12.1	+/-1.42	0.588	0.247	+/-1.77		pCi/g						
Protactinium-231	UI	0.00	+/-0.803	0.910	0.427	+/-0.830		pCi/g						
Radium-226		0.516	+/-0.144	0.123	0.0558	+/-0.150		pCi/g						
Radium-228		0.723	+/-0.246	0.235	0.104	+/-0.266		pCi/g						
Thallium-208		0.193	+/-0.0628	0.0574	0.0259	+/-0.0648		pCi/g						
Tin-126	UI	0.00	+/-0.0836	0.141	0.0678	+/-0.140		pCi/g						
<i>Gammascpec. Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.000969	+/-0.269	0.511	0.238	+/-0.269		pCi/g		MJH1	01/05/16	0618	1534345	3
Antimony-125	U	0.037	+/-0.101	0.198	0.0902	+/-0.103		pCi/g						
Bismuth-212	UI	0.00	+/-0.827	1.37	0.627	+/-0.955		pCi/g						
Bismuth-214		0.671	+/-0.168	0.149	0.067	+/-0.177		pCi/g						
Cesium-137		0.291	+/-0.0772	0.0898	0.0407	+/-0.0807	0.100	pCi/g						
Cobalt-60	U	-0.00111	+/-0.0367	0.0757	0.0314	+/-0.0367		pCi/g						
Europium-154	U	-0.0484	+/-0.120	0.227	0.0958	+/-0.122		pCi/g						
Lead-212		0.725	+/-0.154	0.140	0.0662	+/-0.165		pCi/g						
Lead-214		0.905	+/-0.189	0.328	0.158	+/-0.201		pCi/g						
Potassium-40		11.9	+/-1.49	0.826	0.348	+/-1.91		pCi/g						
Protactinium-231	U	0.274	+/-0.601	1.05	0.487	+/-0.617		pCi/g						
Radium-226		0.671	+/-0.168	0.149	0.067	+/-0.177		pCi/g						
Radium-228		0.599	+/-0.271	0.326	0.145	+/-0.281		pCi/g						
Thallium-208		0.236	+/-0.0736	0.0718	0.0321	+/-0.0762		pCi/g						
Tin-126	U	0.011	+/-0.109	0.191	0.0913	+/-0.110		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		10.0	+/-3.36	3.88	1.66	+/-3.88	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		20.1	+/-2.90	2.83	1.30	+/-4.08	10.0	pCi/g						

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Contact: Ms. Laurie Loscy
Project: Soil Radioisotopes

Client Sample ID: BGA2.4.2
Sample ID: 388121001

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1146	1533707

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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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.5.1
Sample ID: 388121002
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 44.7%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPT	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		44.7						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.150	+/-0.286	0.555	0.259	+/-0.295		pCi/g		RXF2	01/20/16	0619	1534968	2
Antimony-125	UI	0.00	+/-0.171	0.236	0.110	+/-0.185		pCi/g						
Bismuth-212	UI	0.00	+/-0.796	1.56	0.724	+/-1.18		pCi/g						
Bismuth-214		0.674	+/-0.176	0.155	0.0705	+/-0.184		pCi/g						
Cesium-137		0.427	+/-0.0877	0.0836	0.0377	+/-0.0941	0.100	pCi/g						
Cobalt-60	U	0.0092	+/-0.0425	0.0874	0.0374	+/-0.0427		pCi/g						
Europium-154	U	0.0872	+/-0.118	0.262	0.114	+/-0.125		pCi/g						
Lead-212		0.980	+/-0.125	0.113	0.0529	+/-0.149		pCi/g						
Lead-214		0.988	+/-0.205	0.151	0.0694	+/-0.221		pCi/g						
Potassium-40		15.5	+/-1.69	0.728	0.301	+/-2.16		pCi/g						
Protactinium-231	U	0.520	+/-0.655	1.15	0.540	+/-0.706		pCi/g						
Radium-226		0.674	+/-0.176	0.155	0.0705	+/-0.184		pCi/g						
Radium-228		0.989	+/-0.262	0.299	0.132	+/-0.298		pCi/g						
Thallium-208		0.333	+/-0.0805	0.082	0.0373	+/-0.085		pCi/g						
Tin-126	UI	0.00	+/-0.127	0.142	0.0672	+/-0.128		pCi/g						
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.00301	+/-0.316	0.590	0.275	+/-0.316		pCi/g		MJH1	01/05/16	0632	1534345	3
Antimony-125	U	0.00046	+/-0.124	0.230	0.105	+/-0.124		pCi/g						
Bismuth-212	UI	0.00	+/-0.882	1.75	0.810	+/-1.12		pCi/g						
Bismuth-214		0.726	+/-0.178	0.166	0.0748	+/-0.188		pCi/g						
Cesium-137		0.372	+/-0.122	0.0885	0.0395	+/-0.125	0.100	pCi/g						
Cobalt-60	U	-0.0499	+/-0.0474	0.073	0.0293	+/-0.0526		pCi/g						
Europium-154	U	-0.169	+/-0.167	0.267	0.114	+/-0.184		pCi/g						
Lead-212		0.875	+/-0.180	0.196	0.0939	+/-0.193		pCi/g						
Lead-214		1.01	+/-0.213	0.200	0.0932	+/-0.228		pCi/g						
Potassium-40		13.8	+/-1.76	0.715	0.285	+/-2.14		pCi/g						
Protactinium-231	U	0.557	+/-0.674	1.27	0.594	+/-0.730		pCi/g						
Radium-226		0.726	+/-0.178	0.166	0.0748	+/-0.188		pCi/g						
Radium-228		0.941	+/-0.384	0.369	0.164	+/-0.403		pCi/g						
Thallium-208		0.312	+/-0.0932	0.0858	0.0386	+/-0.0968		pCi/g						
Tin-126	U	0.0536	+/-0.183	0.252	0.121	+/-0.184		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		8.75	+/-3.18	3.99	1.73	+/-3.60	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		22.9	+/-2.90	2.84	1.32	+/-4.32	10.0	pCi/g						

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Certificate of Analysis

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

Report Date: January 21, 2016

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: BGA2.5.1
Sample ID: 388121002

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	LYT1	12/28/15	1146	1533707

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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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: January 21, 2016

Client Sample ID: BGA2.5.1
Sample ID: 388121002
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 44.7%

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		44.7						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	0.150	+/-0.286	0.555	0.259	+/-0.295		pCi/g		RXF2	01/20/16	0619	1534968	2
Antimony-125	UI	0.00	+/-0.171	0.236	0.110	+/-0.185		pCi/g						
Bismuth-212	UI	0.00	+/-0.796	1.56	0.724	+/-1.18		pCi/g						
Bismuth-214		0.674	+/-0.176	0.155	0.0705	+/-0.184		pCi/g						
Cesium-137		0.427	+/-0.0877	0.0836	0.0377	+/-0.0941	0.100	pCi/g						
Cobalt-60	U	0.0092	+/-0.0425	0.0874	0.0374	+/-0.0427		pCi/g						
Europium-154	U	0.0872	+/-0.118	0.262	0.114	+/-0.125		pCi/g						
Lead-212		0.980	+/-0.125	0.113	0.0529	+/-0.149		pCi/g						
Lead-214		0.988	+/-0.205	0.151	0.0694	+/-0.221		pCi/g						
Potassium-40		15.5	+/-1.69	0.728	0.301	+/-2.16		pCi/g						
Protactinium-231	U	0.520	+/-0.655	1.15	0.540	+/-0.706		pCi/g						
Radium-226		0.674	+/-0.176	0.155	0.0705	+/-0.184		pCi/g						
Radium-228		0.989	+/-0.262	0.299	0.132	+/-0.298		pCi/g						
Thallium-208		0.333	+/-0.0805	0.082	0.0373	+/-0.085		pCi/g						
Tin-126	UI	0.00	+/-0.127	0.142	0.0672	+/-0.128		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.00301	+/-0.316	0.590	0.275	+/-0.316		pCi/g		MJH1	01/05/16	0632	1534345	3
Antimony-125	U	0.00046	+/-0.124	0.230	0.105	+/-0.124		pCi/g						
Bismuth-212	UI	0.00	+/-0.882	1.75	0.810	+/-1.12		pCi/g						
Bismuth-214		0.726	+/-0.178	0.166	0.0748	+/-0.188		pCi/g						
Cesium-137		0.372	+/-0.122	0.0885	0.0395	+/-0.125	0.100	pCi/g						
Cobalt-60	U	-0.0499	+/-0.0474	0.073	0.0293	+/-0.0526		pCi/g						
Europium-154	U	-0.169	+/-0.167	0.267	0.114	+/-0.184		pCi/g						
Lead-212		0.875	+/-0.180	0.196	0.0939	+/-0.193		pCi/g						
Lead-214		1.01	+/-0.213	0.200	0.0932	+/-0.228		pCi/g						
Potassium-40		13.8	+/-1.76	0.715	0.285	+/-2.14		pCi/g						
Protactinium-231	U	0.557	+/-0.674	1.27	0.594	+/-0.730		pCi/g						
Radium-226		0.726	+/-0.178	0.166	0.0748	+/-0.188		pCi/g						
Radium-228		0.941	+/-0.384	0.369	0.164	+/-0.403		pCi/g						
Thallium-208		0.312	+/-0.0932	0.0858	0.0386	+/-0.0968		pCi/g						
Tin-126	U	0.0536	+/-0.183	0.252	0.121	+/-0.184		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		8.75	+/-3.18	3.99	1.73	+/-3.60	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		22.9	+/-2.90	2.84	1.32	+/-4.32	10.0	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

Report Date: January 21, 2016

Client Sample ID: BGA2.5.1
Sample ID: 388121002

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	LYTI	12/28/15	1146	1533707

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4.5.2.3/Ga-01-R
3	DOE HASL 300, 4.5.2.3/Ga-01-R
4	EPA 900 0/SW846 9310/SM 7110B Modified

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.5.2
Sample ID: 388121003
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 30.5%

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		30.5						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.493	+/-0.387	0.597	0.272	+/-0.452		pCi/g		RXF2	01/20/16	0620	1534968	2
Antimony-125	U	-0.109	+/-0.155	0.269	0.121	+/-0.162		pCi/g						
Bismuth-212	U	0.848	+/-1.16	1.99	0.899	+/-1.22		pCi/g						
Bismuth-214		0.876	+/-0.282	0.192	0.0839	+/-0.291		pCi/g						
Cesium-137		0.134	+/-0.0807	0.105	0.0456	+/-0.0814	0.100	pCi/g						
Cobalt-60	U	0.0205	+/-0.0643	0.140	0.0588	+/-0.065		pCi/g						
Europium-154	U	0.0568	+/-0.152	0.347	0.143	+/-0.154		pCi/g						
Lead-212		1.15	+/-0.162	0.155	0.072	+/-0.188		pCi/g						
Lead-214		1.15	+/-0.276	0.224	0.103	+/-0.292		pCi/g						
Potassium-40		19.5	+/-2.57	1.10	0.436	+/-3.07		pCi/g						
Protactinium-231	UI	0.00	+/-1.16	1.23	0.561	+/-1.18		pCi/g						
Radium-226		0.876	+/-0.282	0.192	0.0839	+/-0.291		pCi/g						
Radium-228		1.10	+/-0.366	0.454	0.196	+/-0.390		pCi/g						
Thallium-208		0.312	+/-0.137	0.106	0.047	+/-0.139		pCi/g						
Tin-126	U	0.0749	+/-0.204	0.222	0.106	+/-0.207		pCi/g						
<i>Gammascpec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.186	+/-0.310	0.542	-0.251	+/-0.323		pCi/g		MJH1	01/05/16	0632	1534345	3
Antimony-125	U	0.0366	+/-0.141	0.230	0.106	+/-0.142		pCi/g						
Bismuth-212	UI	0.00	+/-0.811	1.67	0.779	+/-1.15		pCi/g						
Bismuth-214		0.849	+/-0.191	0.179	0.0823	+/-0.206		pCi/g						
Cesium-137		0.114	+/-0.0534	0.0927	0.0422	+/-0.0544	0.100	pCi/g						
Cobalt-60	U	0.00308	+/-0.0518	0.102	0.0444	+/-0.0519		pCi/g						
Europium-154	U	-0.0672	+/-0.166	0.301	0.132	+/-0.169		pCi/g						
Lead-212		1.12	+/-0.142	0.132	0.0619	+/-0.176		pCi/g						
Lead-214		0.940	+/-0.242	0.170	0.0788	+/-0.256		pCi/g						
Potassium-40		17.6	+/-1.80	0.741	0.303	+/-2.35		pCi/g						
Protactinium-231	UI	0.00	+/-0.968	1.04	0.479	+/-1.02		pCi/g						
Radium-226		0.849	+/-0.191	0.179	0.0823	+/-0.206		pCi/g						
Radium-228		0.937	+/-0.362	0.283	0.124	+/-0.390		pCi/g						
Thallium-208		0.354	+/-0.0785	0.0832	0.0378	+/-0.0847		pCi/g						
Tin-126	UI	0.00	+/-0.156	0.215	0.103	+/-0.157		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		12.9	+/-4.02	3.92	1.59	+/-4.74	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		25.2	+/-3.30	2.97	1.36	+/-4.79	10.0	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: BGA2.5.2
Sample ID: 388121003

Report Date: January 21, 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	LYT1	12/28/15	1146	1533707

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4.5.2 3/Ga-01-R
3	DOE HASL 300, 4.5.2 3/Ga-01-R
4	EPA 900.0/SW846 9310/SM 7110B Modified

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

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

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Certificate of Analysis

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

Report Date: January 21, 2016

Client Sample ID: BGA2.5.2
Sample ID: 388121003
Matrix: Soil
Collect Date: 21-DEC-15
Receive Date: 24-DEC-15
Collector: Client
Moisture: 30.5%

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		30.5						percent		LYT1	12/28/15	1146	1533707	1
Rad Gamma Spec Analysis														
<i>Gamma with Ingrowth "Dry Weight Corrected"</i>														
Actinium-227	U	-0.493	+/-0.387	0.597	0.272	+/-0.452		pCi/g		RXF2	01/20/16	0620	1534968	2
Antimony-125	U	-0.109	+/-0.155	0.269	0.121	+/-0.162		pCi/g						
Bismuth-212	U	0.848	+/-1.16	1.99	0.899	+/-1.22		pCi/g						
Bismuth-214		0.876	+/-0.282	0.192	0.0839	+/-0.291		pCi/g						
Cesium-137		0.134	+/-0.0807	0.105	0.0456	+/-0.0814	0.100	pCi/g						
Cobalt-60	U	0.0205	+/-0.0643	0.140	0.0588	+/-0.065		pCi/g						
Europium-154	U	0.0568	+/-0.152	0.347	0.143	+/-0.154		pCi/g						
Lead-212		1.15	+/-0.162	0.155	0.072	+/-0.188		pCi/g						
Lead-214		1.15	+/-0.276	0.224	0.103	+/-0.292		pCi/g						
Potassium-40		19.5	+/-2.57	1.10	0.436	+/-3.07		pCi/g						
Protactinium-231	UI	0.00	+/-1.16	1.23	0.561	+/-1.18		pCi/g						
Radium-226		0.876	+/-0.282	0.192	0.0839	+/-0.291		pCi/g						
Radium-228		1.10	+/-0.366	0.454	0.196	+/-0.390		pCi/g						
Thallium-208		0.312	+/-0.137	0.106	0.047	+/-0.139		pCi/g						
Tin-126	U	0.0749	+/-0.204	0.222	0.106	+/-0.207		pCi/g						
<i>Gamma spec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	-0.186	+/-0.310	0.542	0.251	+/-0.323		pCi/g		MJH1	01/05/16	0632	1534345	3
Antimony-125	U	0.0366	+/-0.141	0.230	0.106	+/-0.142		pCi/g						
Bismuth-212	UI	0.00	+/-0.811	1.67	0.779	+/-1.15		pCi/g						
Bismuth-214		0.849	+/-0.191	0.179	0.0823	+/-0.206		pCi/g						
Cesium-137		0.114	+/-0.0534	0.0927	0.0422	+/-0.0544	0.100	pCi/g						
Cobalt-60	U	0.00308	+/-0.0518	0.102	0.0444	+/-0.0519		pCi/g						
Europium-154	U	-0.0672	+/-0.166	0.301	0.132	+/-0.169		pCi/g						
Lead-212		1.12	+/-0.142	0.132	0.0619	+/-0.176		pCi/g						
Lead-214		0.940	+/-0.242	0.170	0.0788	+/-0.256		pCi/g						
Potassium-40		17.6	+/-1.80	0.741	0.303	+/-2.35		pCi/g						
Protactinium-231	UI	0.00	+/-0.968	1.04	0.479	+/-1.02		pCi/g						
Radium-226		0.849	+/-0.191	0.179	0.0823	+/-0.206		pCi/g						
Radium-228		0.937	+/-0.362	0.283	0.124	+/-0.390		pCi/g						
Thallium-208		0.354	+/-0.0785	0.0832	0.0378	+/-0.0847		pCi/g						
Tin-126	UI	0.00	+/-0.156	0.215	0.103	+/-0.157		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A:B, solid "Dry Weight Corrected"</i>														
Alpha		12.9	+/-4.02	3.92	1.59	+/-4.74	4.00	pCi/g		KXB2	01/12/16	0731	1534818	4
Beta		25.2	+/-3.30	2.97	1.36	+/-4.79	10.0	pCi/g						

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: BGA2.5.2
Sample ID: 388121003

Report Date: January 21, 2016

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	12/28/15	1146	1533707

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).