

**Appendix G WNYNSC Confirmatory Certificate of
Analysis**

WNYNSC Confirmatory (C) – COA

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 4, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.I.C1
Sample ID: 385101001
Matrix: Soil
Collect Date: 27-OCT-15 14:50
Receive Date: 05-NOV-15
Collector: Client
Moisture: 34.5%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		34.5				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.109	+/-0.348	0.652		pCi/g		RXF2	12/03/15	0721	1522386	2
Antimony-125	U	0.0694	+/-0.137	0.257		pCi/g						
Cesium-137		1.24	+/-0.141	0.0961	0.100	pCi/g						
Cobalt-60	U	-0.00666	+/-0.0499	0.0949		pCi/g						
Europium-154	U	0.162	+/-0.229	0.370		pCi/g						
Protactinium-231	U	0.891	+/-0.714	1.20		pCi/g						
Radium-226		0.886	+/-0.196	0.192		pCi/g						
Radium-228		1.06	+/-0.358	0.320		pCi/g						
Tin-126	U	0.133	+/-0.143	0.164		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		9.44	+/-3.16	3.84	4.00	pCi/g		JXB7	12/02/15	1405	1525768	3
Beta		29.0	+/-2.82	2.22	10.0	pCi/g						

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

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

Notes:

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

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Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: C.I.C1
Sample ID: 385101001
Matrix: Soil
Collect Date: 27-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 34.5%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		34.5						percent		LYT1	11/10/15	0955	1521927	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.109	+/-0.348	0.652	0.307	+/-0.352		pCi/g		RXF2	12/03/15	0721	1522386	2
Antimony-125	U	0.0694	+/-0.137	0.257	0.120	+/-0.140		pCi/g						
Bismuth-212	UI	0.00	+/-0.845	1.69	0.783	+/-1.10		pCi/g						
Bismuth-214		0.886	+/-0.196	0.192	0.0884	+/-0.210		pCi/g						
Cesium-137		1.24	+/-0.141	0.0961	0.0437	+/-0.174	0.100	pCi/g						
Cobalt-60	U	-0.00666	+/-0.0499	0.0949	0.0406	+/-0.050		pCi/g						
Europium-154	U	0.162	+/-0.229	0.370	0.166	+/-0.241		pCi/g						
Lead-212		1.23	+/-0.144	0.140	0.0658	+/-0.176		pCi/g						
Lead-214		1.26	+/-0.212	0.402	0.194	+/-0.237		pCi/g						
Potassium-40		22.0	+/-2.03	0.730	0.296	+/-2.82		pCi/g						
Protactinium-231	UI	0.00	+/-0.714	1.20	0.563	+/-0.742		pCi/g						
Radium-226		0.886	+/-0.196	0.192	0.0884	+/-0.210		pCi/g						
Radium-228		1.06	+/-0.358	0.320	0.141	+/-0.391		pCi/g						
Thallium-208		0.334	+/-0.0978	0.0761	0.0341	+/-0.102		pCi/g						
Tin-126	UI	0.00	+/-0.143	0.164	0.0777	+/-0.144		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		9.44	+/-3.16	3.84	1.67	+/-3.65	4.00	pCi/g		JXB7	12/02/15	1405	1525768	3
Beta		29.0	+/-2.82	2.22	1.03	+/-5.06	10.0	pCi/g						

The following Prep Methods were performed

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

The following Analytical Methods were performed

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

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

Company : MJW Corporation
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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: C.1.C1
Sample ID: 385101001

Project: MJWC00115
Client ID: MJWC001

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

Batch ID	Recovery%	Acceptable Limits
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Notes:

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

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

Report Date: January 19, 2016

Client Sample ID: C.I.C5
Sample ID: 387899006
Matrix: Water
Collect Date: 27-OCT-15
Receive Date: 21-DEC-15
Collector: Client

Project: MJWC00115
Client ID: MJWC001

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

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

Actinium-227	U	-9.84	+/-24.0	40.5	19.0	+/-24.5		pCi/L		MJH1	01/11/16	0658	1532831	1
Antimony-125	U	3.87	+/-8.61	16.4	7.60	+/-8.79		pCi/L						
Bismuth-212	U	8.19	+/-47.7	91.4	41.7	+/-47.9		pCi/L						
Bismuth-214	UI	0.00	+/-12.6	11.8	5.43	+/-12.6		pCi/L						
Cesium-137	U	-0.221	+/-3.22	5.77	2.62	+/-3.23	10.0	pCi/L						
Cobalt-60	U	-1.16	+/-3.52	6.53	2.84	+/-3.56		pCi/L						
Europium-154	U	-0.913	+/-9.57	18.4	8.07	+/-9.58		pCi/L						
Lead-212	UI	0.00	+/-9.96	12.4	5.92	+/-11.6		pCi/L						
Lead-214	U	0.0996	+/-8.56	13.6	6.41	+/-8.56		pCi/L						
Potassium-40	UI	0.00	+/-57.6	67.2	29.4	+/-58.0		pCi/L						
Protactinium-231	UI	0.00	+/-42.6	81.1	38.1	+/-49.7		pCi/L						
Radium-228	UI	0.00	+/-10.2	25.3	11.5	+/-11.5		pCi/L						
Thallium-208	U	-1.15	+/-4.93	7.02	3.25	+/-4.96		pCi/L						
Tin-126	U	0.285	+/-7.62	13.4	6.38	+/-7.62		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	0.838	+/-1.66	3.15	1.11	+/-1.66	5.00	pCi/L		JXB7	01/05/16	1148	1533798	2
Beta	U	0.0479	+/-1.91	3.61	1.56	+/-1.91	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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Company : MJW Corporation
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.2.C1
Sample ID: 385101002
Matrix: Soil
Collect Date: 27-OCT-15 10:34
Receive Date: 05-NOV-15
Collector: Client
Moisture: 11.1%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		11.1				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.0628	+/-0.300	0.554		pCi/g		RXF2	12/03/15	0721	1522386	2
Antimony-125	U	0.0662	+/-0.122	0.232		pCi/g						
Cesium-137		8.68	+/-0.236	0.0642	0.100	pCi/g						
Cobalt-60	U	0.0143	+/-0.0287	0.0581		pCi/g						
Europium-154	U	-0.0807	+/-0.0904	0.154		pCi/g						
Protactinium-231	U	0.631	+/-0.733	0.975		pCi/g						
Radium-226		0.641	+/-0.134	0.139		pCi/g						
Radium-228	UI	0.00	+/-0.240	0.372		pCi/g						
Tin-126	U	0.156	+/-0.125	0.161		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		8.06	+/-3.09	3.37	4.00	pCi/g		JXB7	12/02/15	1406	1525768	3
Beta		20.4	+/-3.40	3.92	10.0	pCi/g						

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

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

Notes:

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

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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: C.2.C1
Sample ID: 385101002
Matrix: Soil
Collect Date: 27-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 11.1%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		11.1						percent		LYT1	11/10/15	0955	1521927	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.0628	+/-0.300	0.554	0.267	+/-0.301		pCi/g		RXF2	12/03/15	0721	1522386	2
Antimony-125	U	0.0662	+/-0.122	0.232	0.112	+/-0.126		pCi/g						
Bismuth-212	U	0.360	+/-0.441	0.875	0.411	+/-0.471		pCi/g						
Bismuth-214		0.641	+/-0.134	0.139	0.0659	+/-0.144		pCi/g						
Cesium-137		8.68	+/-0.236	0.0642	0.0302	+/-0.740	0.100	pCi/g						
Cobalt-60	U	0.0143	+/-0.0287	0.0581	0.0262	+/-0.0294		pCi/g						
Europium-154	U	0.0807	+/-0.0904	0.154	0.0693	+/-0.0977		pCi/g						
Lead-212		0.985	+/-0.129	0.115	0.0553	+/-0.152		pCi/g						
Lead-214		0.903	+/-0.172	0.165	0.0795	+/-0.187		pCi/g						
Potassium-40		14.5	+/-1.23	0.412	0.178	+/-1.76		pCi/g						
Protactinium-231	UI	0.00	+/-0.733	0.975	0.468	+/-0.747		pCi/g						
Radium-226		0.641	+/-0.134	0.139	0.0659	+/-0.144		pCi/g						
Radium-228	UI	0.00	+/-0.240	0.372	0.178	+/-0.430		pCi/g						
Thallium-208		0.243	+/-0.066	0.0676	0.032	+/-0.0691		pCi/g						
Tin-126	UI	0.00	+/-0.125	0.161	0.0778	+/-0.126		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		8.06	+/-3.09	3.37	1.35	+/-3.46	4.00	pCi/g		JXB7	12/02/15	1406	1525768	3
Beta		20.4	+/-3.40	3.92	1.84	+/-4.44	10.0	pCi/g						

The following Prep Methods were performed

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

The following Analytical Methods were performed

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

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

Company : MJW Corporation
Address : 15 Hazelwood Drive
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Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: C.2.C1
Sample ID: 385101002

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

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Report Date: December 4, 2015

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

Client Sample ID: C.2.C4
Sample ID: 385101003
Matrix: Soil
Collect Date: 27-OCT-15 10:55
Receive Date: 05-NOV-15
Collector: Client
Moisture: 14.3%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		14.3				percent		LYT1	11/10/15	0955	1521927	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.333	+/-0.615	0.935		pCi/g		RXF2	12/03/15	0722	1522386	2
Antimony-125	U	-0.0534	+/-0.298	0.533		pCi/g						
Cesium-137		30.2	+/-0.572	0.0999	0.100	pCi/g						
Cobalt-60	U	-0.00261	+/-0.038	0.0751		pCi/g						
Europium-154	U	0.0645	+/-0.133	0.275		pCi/g						
Protactinium-231	U	1.05	+/-1.19	2.02		pCi/g						
Radium-226		0.720	+/-0.224	0.232		pCi/g						
Radium-228		0.797	+/-0.356	0.299		pCi/g						
Tin-126	U	0.00	+/-0.179	0.154		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		13.1	+/-3.94	3.96	4.00	pCi/g		JXB7	12/02/15	1409	1525768	3
Beta		46.8	+/-4.09	2.63	10.0	pCi/g						

The following Prep Methods were performed:

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

The following Analytical Methods were performed:

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

Notes:

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

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Certificate of Analysis

Company : MJW Corporation
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Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Project: MJWC00115
Client ID: MJWC001

Client Sample ID: C.2.C4
Sample ID: 385101003
Matrix: Soil
Collect Date: 27-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 14.3%

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		14.3						percent		LYT1	11/10/15	0955	1521927	1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.333	+/-0.615	0.935	0.453	+/-0.635		pCi/g		RXF2	12/03/15	0722	1522386	2
Americium-241		0.141	+/-0.109	0.139	0.0674	+/-0.110		pCi/g						
Antimony-125	U	-0.0534	+/-0.298	0.533	0.259	+/-0.299		pCi/g						
Bismuth-212	UI	0.00	+/-1.06	1.55	0.726	+/-1.37		pCi/g						
Bismuth-214		0.720	+/-0.224	0.232	0.110	+/-0.232		pCi/g						
Cesium-137		30.2	+/-0.572	0.0999	0.0463	+/-2.60	0.100	pCi/g						
Cobalt-60	U	-0.00261	+/-0.038	0.0751	0.0318	+/-0.038		pCi/g						
Europium-154	U	0.0645	+/-0.133	0.275	0.122	+/-0.136		pCi/g						
Lead-212		1.10	+/-0.163	0.213	0.104	+/-0.212		pCi/g						
Lead-214		0.924	+/-0.346	0.353	0.172	+/-0.355		pCi/g						
Potassium-40		16.6	+/-1.63	0.871	0.377	+/-2.29		pCi/g						
Protactinium-231	UI	0.00	+/-1.19	2.02	0.983	+/-1.31		pCi/g						
Radium-226		0.720	+/-0.224	0.232	0.110	+/-0.232		pCi/g						
Radium-228		0.797	+/-0.356	0.299	0.134	+/-0.371		pCi/g						
Thallium-208		0.319	+/-0.115	0.125	0.0595	+/-0.118		pCi/g						
Tin-126	UI	0.00	+/-0.179	0.154	0.0747	+/-0.182		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		13.1	+/-3.94	3.96	1.64	+/-4.70	4.00	pCi/g		JXB7	12/02/15	1409	1525768	3
Beta		46.8	+/-4.09	2.63	1.19	+/-7.87	10.0	pCi/g						

The following Prep Methods were performed

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

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300, 4 5 2.3/Ga-01-R
3	EPA 900.0/SW846 9310/SM 7110B Modified

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

Company : MJW Corporation
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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Report Date: December 17, 2015

Client Sample ID: C.2.C4
Sample ID: 385101003

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

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Certificate of Analysis

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Company : MJW Corporation
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Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.2.C5
Sample ID: 385101004
Matrix: Soil
Collect Date: 27-OCT-15 11:00
Receive Date: 05-NOV-15
Collector: Client
Moisture: 15.6%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		15.6				percent		LYT1	11/10/15	0955	1521927	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	0.00	+/-0.0489	0.0728	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	0.0679	+/-0.110	0.170	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	0.0424	+/-0.112	0.207	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.07	+/-0.312	0.127	1.00	pci/g						
Uranium-235/236	U	0.0461	+/-0.0789	0.0691	1.00	pci/g						
Uranium-238		0.959	+/-0.295	0.110	1.00	pci/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	0.0563	+/-0.252	0.494	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		1.10	+/-0.546	0.432	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.0266	+/-0.184	0.447	1.00	pCi/g						
Thorium-230		0.891	+/-0.475	0.289	1.00	pCi/g						
Thorium-232		1.02	+/-0.501	0.181	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241		0.107	+/-0.0881	0.0757	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242	U	0.00	+/-0.0354	0.0527	1.00	pCi/g						
Curium-243/244	U	-0.00374	+/-0.0323	0.0748	1.00	pCi/g						
Curium-245/246	U	0.0361	+/-0.0619	0.0542	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	-2.42	+/-7.71	13.4	15.0	pCi/g		HAKB	11/25/15	1638	1522578	7
Rad Gamma Spec Analysis												
Gamma 1129, Solid "Dry Weight Corrected"												
Iodine-129	U	-0.112	+/-0.284	0.479	1.00	pCi/g		MJH1	12/02/15	1710	1522374	8
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0119	+/-0.463	0.841		pCi/g		RXF2	12/03/15	0733	1522386	9
Antimony-125	U	0.166	+/-0.218	0.402		pCi/g						
Cesium-137		23.8	+/-0.407	0.090	0.100	pCi/g						
Cobalt-60	U	0.0023	+/-0.0362	0.0601		pCi/g						
Europium-154	U	-0.183	+/-0.117	0.175		pCi/g						
Protactinium-231	U	-0.677	+/-1.10	1.65		pCi/g						

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Certificate of Analysis

Report Date: December 4, 2015

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

Client Sample ID: C.2.C5

Sample ID: 385101004

Project: MJWC00115

Client ID: MJWC001

Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Radium-226	0.822	+/-0.213	0.187	pCi/g	
Radium-228	0.943	+/-0.380	0.254	pCi/g	
Tin-126	U	0.175	+/-0.216	0.212	pCi/g

Rad Gas Flow Proportional Counting

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

Alpha	13.7	+/-3.90	3.54	4.00	pCi/g	JXB7	12/02/15	1411	1525768	10
Beta	39.9	+/-4.02	2.71	10.0	pCi/g					

GFPC, Sr90, solid "Dry Weight Corrected"

Strontium-90	U	1.25	+/-1.10	1.78	2.00	pCi/g	KSD1	12/02/15	1710	1525755	11
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Rad Liquid Scintillation Analysis

LSC, Tritium Dist, Solid "Dry Weight Corrected"

Tritium	U	0.520	+/-1.65	3.02	6.00	pCi/g	TXJ1	12/02/15	1856	1522724	12
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Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	-0.615	+/-0.809	1.41	2.00	pCi/g	TXJ1	12/04/15	0407	1522716	13
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Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	1.15	+/-1.37	2.31	5.00	pCi/g	MYM1	11/29/15	1323	1522715	14
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The following Prep Methods were performed:

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

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Certificate of Analysis

Report Date: December 4, 2015

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

Client Sample ID: C.2.C5

Project: MJWC00115

Sample ID: 385101004

Client ID: MJWC001

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	ASTM D 2216 (Modified)	
2	DOE EML HASL-300, Pu-11-RC Modified	
3	DOE EML HASL-300, U-02-RC Modified	
4	ASTM C 1476-00 Modified	
5	DOE EML HASL-300, Th-01-RC Modified	
6	DOE EML HASL-300, Am-05-RC Modified	
7	DOE EML HASL-300, Pu-11-RC Modified	
8	DOE EML HASL-300, I-01 Modified	
9	DOE HASL 300, 4.5 2.3/Ga-01-R	
10	EPA 900.0/SW846 9310/SM 7110B Modified	
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified	
12	EPA 906.0 Modified	
13	EPA EERF C-01 Modified	
14	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"			63.2	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			63.4	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			68.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			93.3	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			87.7	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			94.4	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			63.2	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			84.6	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"			95.9	(15%-125%)

Notes:

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

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Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: C.2.C5
Sample ID: 385101004
Matrix: Soil
Collect Date: 27-OCT-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 15.6%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
<i>ASTM D 2216 % Moisture "As Received"</i>														
Moisture		15.6						percent		LYTI	11/10/15	0955	1521927	1
Rad Alpha Spec Analysis														
<i>ASP Plutonium Isotopic, Solid "Dry Weight Corrected"</i>														
Plutonium-238		0.00	+/-0.0489	0.0728	0.00	+/-0.0491	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240		0.0679	+/-0.110	0.170	0.0486	+/-0.110	1.00	pCi/g						
<i>ASP Uranium Isotopic, Solid "Dry Weight Corrected"</i>														
Uranium-232	U	0.0424	+/-0.112	0.207	0.0784	+/-0.113	1.00	pCi/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		1.07	+/-0.312	0.127	0.0291	+/-0.382	1.00	pCi/g						
Uranium-235/236		0.0461	+/-0.0789	0.0691	0.00	+/-0.0795	1.00	pCi/g						
Uranium-238		0.959	+/-0.295	0.110	0.0206	+/-0.355	1.00	pCi/g						
<i>Alphaspec Np237, Solid "Dry Weight Corrected"</i>														
Neptunium-237	U	0.0563	+/-0.252	0.494	0.141	+/-0.253	1.00	pCi/g		HAKB	11/23/15	1711	1522576	4
<i>Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"</i>														
Thorium-228		1.10	+/-0.546	0.432	0.123	+/-0.572	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	-0.0266	+/-0.184	0.447	0.133	+/-0.184	1.00	pCi/g						
Thorium-230		0.891	+/-0.475	0.289	0.0542	+/-0.494	1.00	pCi/g						
Thorium-232		1.02	+/-0.501	0.181	0.00	+/-0.524	1.00	pCi/g						
<i>Am241, Cm Solid "Dry Weight Corrected"</i>														
Americium-241		0.107	+/-0.0881	0.0757	0.0142	+/-0.0892	1.00	pCi/g		HAKB	11/24/15	1039	1522571	6
Curium-242		0.00	+/-0.0354	0.0527	0.00	+/-0.0355	1.00	pCi/g						
Curium-243/244	U	-0.00374	+/-0.0323	0.0748	0.014	+/-0.0323	1.00	pCi/g						
Curium-245/246		0.0361	+/-0.0619	0.0542	0.00	+/-0.0621	1.00	pCi/g						
<i>Liquid Scint Pu241, Solid "Dry Weight Corrected"</i>														
Plutonium-241	U	-2.42	+/-7.71	13.4	6.53	+/-7.71	15.0	pCi/g		HAKB	11/25/15	1638	1522578	7
Rad Gamma Spec Analysis														
<i>Gamma 1129, Solid "Dry Weight Corrected"</i>														
Iodine-129	U	-0.112	+/-0.284	0.479	0.212	+/-0.289	1.00	pCi/g		MJHI	12/02/15	1710	1522374	8
<i>Gammasspec, Gamma, Solid "Dry Weight Corrected"</i>														
Actinium-227	U	0.0119	+/-0.463	0.841	0.409	+/-0.463		pCi/g		RXF2	12/03/15	0733	1522386	9
Antimony-125	U	0.166	+/-0.218	0.402	0.196	+/-0.231		pCi/g						
Bismuth-212	UI	0.00	+/-0.771	1.07	0.506	+/-0.853		pCi/g						
Bismuth-214		0.822	+/-0.213	0.187	0.0897	+/-0.224		pCi/g						
Cesium-137		23.8	+/-0.407	0.090	0.0428	+/-2.10	0.100	pCi/g						
Cobalt-60	U	0.0023	+/-0.0362	0.0601	0.0267	+/-0.0362		pCi/g						
Europium-154	U	-0.183	+/-0.117	0.175	0.0782	+/-0.144		pCi/g						
Lead-212		1.04	+/-0.161	0.187	0.0912	+/-0.180		pCi/g						
Lead-214		0.940	+/-0.286	0.341	0.167	+/-0.295		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: C.2.C5
Sample ID: 385101004

Report Date: December 17, 2015

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		14.7	+/-1.23	0.515	0.225	+/-1.76		pCi/g						
Protactinium-231	U	-0.677	+/-1.10	1.65	0.804	+/-1.15		pCi/g						
Radium-226		0.822	+/-0.213	0.187	0.0897	+/-0.224		pCi/g						
Radium-228		0.943	+/-0.380	0.254	0.117	+/-0.392		pCi/g						
Thallium-208		0.396	+/-0.109	0.0971	0.0466	+/-0.114		pCi/g						
Tin-126	UI	0.00	+/-0.216	0.212	0.103	+/-0.216		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A-B, solid "Dry Weight Corrected"</i>														
Alpha		13.7	+/-3.90	3.54	1.42	+/-4.69	4.00	pCi/g		JXB7	12/02/15	1411	1525768	10
Beta		39.9	+/-4.02	2.71	1.22	+/-6.81	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90		1.25	+/-1.10	1.78	0.784	+/-1.13	2.00	pCi/g		KSD1	12/02/15	1710	1525755	11
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	0.520	+/-1.65	3.02	1.31	+/-1.65	6.00	pCi/g		TXJ1	12/02/15	1856	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	-0.615	+/-0.809	1.41	0.690	+/-0.809	2.00	pCi/g		TXJ1	12/04/15	0407	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99		1.15	+/-1.37	2.31	1.11	+/-1.38	5.00	pCi/g		MYM	11/29/15	1323	1522715	14

The following Prep Methods were performed

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

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	ASTM C 1476-00 Modified
5	DOE EML HASL-300, Th-01-RC Modified
6	DOE EML HASL-300, Am-05-RC Modified
7	DOE EML HASL-300, Pu-11-RC Modified
8	DOE EML HASL-300, I-01 Modified
9	DOE HASL 300, 4.5.2.3/Ga-01-R
10	EPA 900 Q/SW846 9310/SM 7110B Modified
11	EPA 905 0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906 0 Modified
13	EPA EERF C-01 Modified

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Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: C.2.C5
Sample ID: 385101004

Project: MJWC00115
Client ID: MJWC001

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	63.2	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	63.4	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	68.1	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	93.3	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1522579	87.7	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	94.4	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	63.2	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	84.6	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	95.9	(15%-125%)

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.3.C1
Sample ID: 385068005
Matrix: Soil
Collect Date: 02-NOV-15 09:30
Receive Date: 05-NOV-15
Collector: Client
Moisture: 42%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		42.0				percent		CXC1	11/10/15	1326	1521841	1
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	-0.203	+/-0.448	0.755		pCi/g		RXF2	12/03/15	0708	1522393	2
Antimony-125	U	0.0343	+/-0.153	0.297		pCi/g						
Cesium-137		0.935	+/-0.214	0.133	0.100	pCi/g						
Cobalt-60	U	-0.0216	+/-0.0696	0.134		pCi/g						
Europium-154	U	0.141	+/-0.200	0.443		pCi/g						
Protactinium-231	U	0.162	+/-0.833	1.59		pCi/g						
Radium-226		0.744	+/-0.244	0.202		pCi/g						
Radium-228		0.602	+/-0.350	0.510		pCi/g						
Tin-126	U	0.0618	+/-0.157	0.204		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		10.1	+/-3.43	3.84	4.00	pCi/g		JXB7	12/02/15	1221	1525762	3
Beta		8.69	+/-2.27	2.71	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1326	1521841

The following Analytical Methods were performed:

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

Notes:

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

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Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Loscy
Project: Soil Radioisotopes

Client Sample ID: C3.C1
Sample ID: 385068005
Matrix: Soil
Collect Date: 02-NOV-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 42%

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		42.0						percent		CXC1	11/10/15	1326	1521841	1
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Rad Gamma Spec Analysis

GammaSpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	0.203	+/-0.448	0.755	0.348	+/-0.458		pCi/g		RXF2	12/03/15	0708	1522393	2
Antimony-125	U	0.0343	+/-0.153	0.297	0.133	+/-0.154		pCi/g						
Bismuth-212	UI	0.00	+/-1.45	2.32	1.05	+/-1.54		pCi/g						
Bismuth-214		0.744	+/-0.244	0.202	0.0875	+/-0.251		pCi/g						
Cesium-137		0.935	+/-0.214	0.133	0.0585	+/-0.226	0.100	pCi/g						
Cobalt-60	U	-0.0216	+/-0.0696	0.134	0.0543	+/-0.0703		pCi/g						
Europium-154	U	0.141	+/-0.200	0.443	0.187	+/-0.210		pCi/g						
Lead-212		0.975	+/-0.158	0.156	0.0721	+/-0.178		pCi/g						
Lead-214		1.21	+/-0.260	0.507	0.243	+/-0.278		pCi/g						
Potassium-40		9.36	+/-2.01	1.14	0.440	+/-2.16		pCi/g						
Protactinium-231	U	0.162	+/-0.833	1.59	0.735	+/-0.837		pCi/g						
Radium-226		0.744	+/-0.244	0.202	0.0875	+/-0.251		pCi/g						
Radium-228		0.602	+/-0.350	0.510	0.221	+/-0.357		pCi/g						
Thallium-208		0.251	+/-0.104	0.0998	0.043	+/-0.106		pCi/g						
Tin-126	U	0.0618	+/-0.157	0.204	0.0966	+/-0.157		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		10.1	+/-3.43	3.84	1.61	+/-3.90	4.00	pCi/g		JXB7	12/02/15	1221	1525762	3
Beta		8.69	+/-2.27	2.71	1.23	+/-2.54	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1326	1521841

The following Analytical Methods were performed

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

Surrogate/Tracer Recovery Test

Batch ID Recovery% Acceptable Limits

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.3.C1
Sample ID: 385068005

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).

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: December 7, 2015

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

Client Sample ID: C-4.C1
Sample ID: 385068006
Matrix: Soil
Collect Date: 02-NOV-15 11:40
Receive Date: 05-NOV-15
Collector: Client
Moisture: 37.6%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		37.6				percent	CXC1	11/10/15	1326	1521841		1
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Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Actinium-227	U	-0.386	+/-0.371	0.627		pCi/g	RXF2	12/03/15	0708	1522393		2
Antimony-125	U	0.0167	+/-0.152	0.278		pCi/g						
Cesium-137		1.41	+/-0.172	0.130	0.100	pCi/g						
Cobalt-60	U	0.0584	+/-0.0587	0.133		pCi/g						
Europium-154	U	0.031	+/-0.200	0.393		pCi/g						
Protactinium-231	UI	0.00	+/-0.995	1.29		pCi/g						
Radium-226		1.03	+/-0.213	0.165		pCi/g						
Radium-228		1.18	+/-0.351	0.351		pCi/g						
Tin-126	UI	0.00	+/-0.156	0.189		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		22.3	+/-5.12	3.98	4.00	pCi/g	JXB7	12/02/15	1223	1525762		3
Beta		40.2	+/-4.42	3.15	10.0	pCi/g						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1326	1521841

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	ASTM D 2216 (Modified)	
2	DOE HASL 300.4 5 2 3/Ga-01-R	
3	EPA 900.0/SW846 9310/SM 7110B Modified	

Notes:

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

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Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C-4.C1
Sample ID: 385068006
Matrix: Soil
Collect Date: 02-NOV-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 37.6%

Project: MJWC00115
Client ID: MJWC001

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

ASTM D 2216 % Moisture "As Received"

Moisture		37.6						percent		CXC1	11/10/15	1326	1521841	1
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Rad Gamma Spec Analysis

Gammascpec. Gamma. Solid "Dry Weight Corrected"

Actinium-227	U	-0.386	+/-0.371	0.627	0.291	+/-0.413		pCi/g		RXF2	12/03/15	0708	1522393	2
Antimony-125	U	0.0167	+/-0.152	0.278	0.128	+/-0.152		pCi/g						
Bismuth-212	UI	0.00	+/-1.34	1.82	0.839	+/-1.57		pCi/g						
Bismuth-214		1.03	+/-0.213	0.165	0.0737	+/-0.232		pCi/g						
Cesium-137		1.41	+/-0.172	0.130	0.0596	+/-0.211	0.100	pCi/g						
Cobalt-60	UI	0.00	+/-0.0587	0.133	0.0583	+/-0.0645		pCi/g						
Europium-154	U	0.031	+/-0.200	0.393	0.174	+/-0.201		pCi/g						
Lead-212		1.14	+/-0.155	0.144	0.0674	+/-0.181		pCi/g						
Lead-214		1.20	+/-0.209	0.440	0.213	+/-0.232		pCi/g						
Potassium-40		17.8	+/-2.13	1.06	0.447	+/-2.61		pCi/g						
Protactinium-231	UI	0.00	+/-0.995	1.29	0.599	+/-1.04		pCi/g						
Radium-226		1.03	+/-0.213	0.165	0.0737	+/-0.232		pCi/g						
Radium-228		1.18	+/-0.351	0.351	0.154	+/-0.391		pCi/g						
Thallium-208		0.266	+/-0.0923	0.101	0.0457	+/-0.0952		pCi/g						
Tin-126	UI	0.00	+/-0.156	0.189	0.0895	+/-0.158		pCi/g						

Rad Gas Flow Proportional Counting

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

Alpha		22.3	+/-5.12	3.98	1.59	+/-6.67	4.00	pCi/g		JXB7	12/02/15	1223	1525762	3
Beta		40.2	+/-4.42	3.15	1.42	+/-7.26	10.0	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1326	1521841

The following Analytical Methods were performed

Method	Description
1	ASTM D 2216 (Modified)
2	DOE HASL 300.4.5.2 3/Ga-01-R
3	EPA 900 0/SW846 9310/SM 7110B Modified

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

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

Report Date: December 17, 2015

Client Sample ID: C.4.C1
Sample ID: 385068006

Project: MJWC00115
Client ID: MJWC001

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

Notes:

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

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Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C4.C5
Sample ID: 385068007
Matrix: Soil
Collect Date: 02-NOV-15
Receive Date: 05-NOV-15
Collector: Client
Moisture: 36.3%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Gravimetric Solids														
ASTM D 2216, % Moisture "As Received"														
Moisture		36.3								CXC1	11/10/15	1326	1521841	1
Rad Alpha Spec Analysis														
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"														
Plutonium-238	U	0.000816	+/-0.0605	0.134	0.1					HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	0.022	+/-0.0849	0.165	0.1									
ASP Uranium Isotopic, Solid "Dry Weight Corrected"														
Uranium-232	U	0.000963	+/-0.0714	0.159	0.04					HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.859	+/-0.293	0.162	0.0									
Uranium-235/236		0.136	+/-0.129	0.136	0.03									
Uranium-238		1.02	+/-0.316	0.136	0.031									
Alphaspec Np237, Solid "Dry Weight Corrected"														
Neptunium-237	U	0.0208	+/-0.218	0.454	0.116	+/-0.218	1.00	pCi/g		HAKB	11/23/15	1706	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"														
Thorium-228		0.893	+/-0.512	0.447	0.126	+/-0.532	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0484	+/-0.182	0.305	0.0572	+/-0.182	1.00	pCi/g						
Thorium-230		0.971	+/-0.517	0.388	0.0988	+/-0.539	1.00	pCi/g						
Thorium-232		0.872	+/-0.483	0.304	0.0569	+/-0.502	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"														
Americium-241		0.0962	+/-0.0787	0.0807	0.0205	+/-0.0796	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242	U	-0.0103	+/-0.0311	0.0875	0.0223	+/-0.0312	1.00	pCi/g						
Curium-243/244	U	-0.0157	+/-0.0297	0.0915	0.0262	+/-0.0297	1.00	pCi/g						
Curium-245/246	X	0.0756	+/-0.0729	0.0454	0.00	+/-0.0735	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"														
Plutonium-241	U	-3.16	+/-6.76	11.8	5.75	+/-6.76	15.0	pCi/g		HAKB	11/25/15	0829	1522578	7
Rad Gamma Spec Analysis														
Gamma 1129, Solid "Dry Weight Corrected"														
Iodine-129	U	0.136	+/-0.373	0.717	0.324	+/-0.378	1.00	pCi/g		MJH1	12/02/15	1342	1522374	8
Gammaspéc, Gamma, Solid "Dry Weight Corrected"														
Actinium-227	U	0.0917	+/-0.392	0.707	0.332	+/-0.394		pCi/g		RXP2	12/03/15	0708	1522393	9
Antimony-125	U	0.0107	+/-0.145	0.261	0.120	+/-0.145		pCi/g						
Bismuth-212	UI	0.00	+/-0.718	1.90	0.885	+/-0.898		pCi/g						
Bismuth-214		0.946	+/-0.209	0.225	0.104	+/-0.226		pCi/g						
Cesium-137		1.49	+/-0.161	0.103	0.0467	+/-0.209	0.100	pCi/g						
Cobalt-60	U	0.00257	+/-0.0596	0.118	0.051	+/-0.0597		pCi/g						
Europium-154	U	0.122	+/-0.177	0.377	0.167	+/-0.185		pCi/g						
Lead-212		1.18	+/-0.151	0.139	0.0649	+/-0.185		pCi/g						
Lead-214		1.26	+/-0.210	0.431	0.209	+/-0.238		pCi/g						

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Certificate of Analysis

Report Date: December 7, 2015

Company : MJW Corporation
Address : 15 Hazelwood Drive
Suite 112
Buffalo, New York 14228
Contact: Ms. Laurie Losey
Project: Soil Radioisotopes
Client Sample ID: C.4.C.5
Sample ID: 385068007

Project: MJWC00115
Client ID: MJWC001

Rad Gamma Spec Analysis

Gammascpec, Gamma, Solid "Dry Weight Corrected"

Radium-226	0.946	+/-0.209	0.225	pCi/g
Radium-228	0.954	+/-0.381	0.469	pCi/g
Tin-126	U	+/-0.145	0.203	pCi/g

Rad Gas Flow Proportional Counting

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

Alpha	16.4	+/-5.26	3.81	4.00	pCi/g	JXB7	12/02/15	1221	1525762	10
Beta	27.1	+/-4.45	3.84	10.0	pCi/g					

GFPC, Sr90, solid "Dry Weight Corrected"

Strontium-90	U	+/-0.371	+/-0.653	1.39	2.00	pCi/g	KSD1	12/02/15	1641	1525755	11
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Rad Liquid Scintillation Analysis

LSC, Tritium Dist, Solid "Dry Weight Corrected"

Tritium	U	1.20	+/-2.25	3.98	6.00	pCi/g	TXJ1	12/02/15	1236	1522724	12
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Liquid Scint C14, Solid "Dry Weight Corrected"

Carbon-14	U	0.243	+/-0.739	1.25	2.00	pCi/g	TXJ1	12/03/15	2242	1522716	13
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Liquid Scint Tc99, Solid "Dry Weight Corrected"

Technetium-99	U	1.15	+/-2.20	3.75	5.00	pCi/g	MYM1	11/29/15	0951	1522715	14
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The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1326	1521841

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: December 7, 2015

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

Client Sample ID: C.4.C.5
Sample ID: 385068007
Matrix: Soil
Collect Date: 02-NOV-15 11:45
Receive Date: 05-NOV-15
Collector: Client
Moisture: 36.3%

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Gravimetric Solids												
ASTM D 2216 % Moisture "As Received"												
Moisture		36.3				percent		CXC1	11/10/15	1326	1521841	1
Rad Alpha Spec Analysis												
ASP Plutonium Isotopic, Solid "Dry Weight Corrected"												
Plutonium-238	U	0.000816	+/-0.0605	0.134	1.00	pCi/g		HAKB	11/23/15	1501	1522577	2
Plutonium-239/240	U	0.022	+/-0.0849	0.165	1.00	pCi/g						
ASP Uranium Isotopic, Solid "Dry Weight Corrected"												
Uranium-232	U	0.000963	+/-0.0714	0.159	1.00	pci/g		HAKB	11/24/15	0851	1522580	3
Uranium-233/234		0.859	+/-0.293	0.162	1.00	pci/g						
Uranium-235/236	U	0.136	+/-0.129	0.136	1.00	pci/g						
Uranium-238		1.02	+/-0.316	0.136	1.00	pci/g						
Alphaspec Np237, Solid "Dry Weight Corrected"												
Neptunium-237	U	0.0208	+/-0.218	0.454	1.00	pCi/g		HAKB	11/23/15	1706	1522576	4
Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"												
Thorium-228		0.893	+/-0.512	0.447	1.00	pCi/g		HAKB	11/24/15	1014	1522579	5
Thorium-229	U	0.0484	+/-0.182	0.305	1.00	pCi/g						
Thorium-230		0.971	+/-0.517	0.388	1.00	pCi/g						
Thorium-232		0.872	+/-0.483	0.304	1.00	pCi/g						
Am241, Cm Solid "Dry Weight Corrected"												
Americium-241		0.0962	+/-0.0787	0.0807	1.00	pCi/g		HAKB	11/24/15	1042	1522571	6
Curium-242	U	-0.0103	+/-0.0311	0.0875	1.00	pCi/g						
Curium-243/244	U	-0.0157	+/-0.0297	0.0915	1.00	pCi/g						
Curium-245/246	X	0.0756	+/-0.0729	0.0454	1.00	pCi/g						
Liquid Scint Pu241, Solid "Dry Weight Corrected"												
Plutonium-241	U	-3.16	+/-6.76	11.8	15.0	pCi/g		HAKB	11/25/15	0829	1522578	7
Rad Gamma Spec Analysis												
Gamma 1129, Solid "Dry Weight Corrected"												
Iodine-129	U	0.136	+/-0.373	0.717	1.00	pCi/g		MJH1	12/02/15	1342	1522374	8
Gammasspec, Gamma, Solid "Dry Weight Corrected"												
Actinium-227	U	0.0917	+/-0.392	0.707		pCi/g		RXF2	12/03/15	0708	1522393	9
Antimony-125	U	0.0107	+/-0.145	0.261		pCi/g						
Cesium-137		1.49	+/-0.161	0.103	0.100	pCi/g						
Cobalt-60	U	0.00257	+/-0.0596	0.118		pCi/g						
Europium-154	U	0.122	+/-0.177	0.377		pCi/g						
Protactinium-231	U/I	0.00	+/-1.06	1.25		pCi/g						

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
 Project: Soil Radioisotopes

Client Sample ID: C4.C.5
 Sample ID: 385068007

Project: MJWC00115
 Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>GammaSpec, Gamma, Solid "Dry Weight Corrected"</i>														
Potassium-40		19.7	+/-2.09	0.888	0.363	+/-2.69		pCi/g						
Protactinium-231	U	0.00	+/-1.06	1.25	0.581	+/-1.11		pCi/g						
Radium-226		0.946	+/-0.209	0.225	0.104	+/-0.226		pCi/g						
Radium-228		0.954	+/-0.381	0.469	0.213	+/-0.410		pCi/g						
Thallium-208		0.405	+/-0.0953	0.0778	0.0345	+/-0.102		pCi/g						
Th-126	U	0.0919	+/-0.145	0.203	0.0961	+/-0.146		pCi/g						
Rad Gas Flow Proportional Counting														
<i>GFPC, Gross A/B, solid "Dry Weight Corrected"</i>														
Alpha		16.4	+/-5.26	3.81	1.31	+/-6.08	4.00	pCi/g		JXB7	12/02/15	1221	1525762	10
Beta		27.1	+/-4.45	3.84	1.70	+/-5.65	10.0	pCi/g						
<i>GFPC, Sr90, solid "Dry Weight Corrected"</i>														
Strontium-90	U	-0.371	+/-0.653	1.39	0.603	+/-0.654	2.00	pCi/g		KSD1	12/02/15	1641	1525755	11
Rad Liquid Scintillation Analysis														
<i>LSC, Tritium Dist, Solid "Dry Weight Corrected"</i>														
Tritium	U	1.20	+/-2.25	3.98	1.73	+/-2.25	6.00	pCi/g		TXJ1	12/02/15	1236	1522724	12
<i>Liquid Scint C14, Solid "Dry Weight Corrected"</i>														
Carbon-14	U	0.243	+/-0.739	1.25	0.617	+/-0.739	2.00	pCi/g		TXJ1	12/03/15	2242	1522716	13
<i>Liquid Scint Tc99, Solid "Dry Weight Corrected"</i>														
Technetium-99	U	1.15	+/-2.20	3.75	1.80	+/-2.20	5.00	pCi/g		MYM	11/29/15	0951	1522715	14

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	11/10/15	1326	1521841

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, L-01 Modified
9	DOE HASL 300, 4 5.2.3/Ga-01-R
10	EPA 900.0/SW846 9310/SM 7110B Modified
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified
12	EPA 906.0 Modified
13	EPA EERF C-01 Modified

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

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

Client Sample ID: C.4.C.5

Sample ID: 385068007

Project: MJWC00115

Client ID: MJWC001

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	ASTM D 2216 (Modified)	
2	DOE EML HASL-300, Pu-11-RC Modified	
3	DOE EML HASL-300, U-02-RC Modified	
4	ASTM C 1476-00 Modified	
5	DOE EML HASL-300, Th-01-RC Modified	
6	DOE EML HASL-300, Am-05-RC Modified	
7	DOE EML HASL-300, Pu-11-RC Modified	
8	DOE EML HASL-300, I-01 Modified	
9	DOE HASL 300, 4.5 2 3/Ga-01-R	
10	EPA 900.0/SW846 9310/SM 7110B Modified	
11	EPA 905.0 Modified/DOE RP501 Rev 1 Modified	
12	EPA 906.0 Modified	
13	EPA EERF C-01 Modified	
14	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"			70.3	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			56.8	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"			60	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"			93.9	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"			95.5	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"			82.3	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"			70.3	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"			89.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"			94.9	(15%-125%)

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: December 17, 2015

Client Sample ID: C.4.C.5
Sample ID: 385068007

Project: MJWC00115
Client ID: MJWC001

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

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	ASP Plutonium Isotopic, Solid "Dry Weight Corrected"	1522577	70.3	(15%-125%)
Uranium-232 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	56.8	(15%-125%)
Uranium-235/236 Tracer	ASP Uranium Isotopic, Solid "Dry Weight Corrected"	1522580	60	(15%-125%)
Americium-243 Tracer	Alphaspec Np237, Solid "Dry Weight Corrected"	1522576	93.9	(15%-125%)
Actinium-227 Tracer	Alphaspec Th229 + 228,230,232 Solid "Dry Weight Corrected"	1522579	95.5	(15%-125%)
Americium-243 Tracer	Am241, Cm Solid "Dry Weight Corrected"	1522571	82.3	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid "Dry Weight Corrected"	1522578	70.3	(15%-125%)
Strontium Carrier	GFPC, Sr90, solid "Dry Weight Corrected"	1525755	89.9	(25%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Solid "Dry Weight Corrected"	1522715	94.9	(15%-125%)

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: December 7, 2015

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

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.4.C.6
Sample ID: 385068008
Matrix: Water
Collect Date: 02-NOV-15 13:00
Receive Date: 05-NOV-15
Collector: Client

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Liquid (Standard List) "As Received"												
Actinium-227	U	-21.9	+/-33.6	55.5		pCi/L		MJH1	11/16/15	0714	1521915	1
Antimony-125	U	3.50	+/-11.8	21.5		pCi/L						
Cesium-137	U	-5.61	+/-5.85	7.69	10.0	pCi/L						
Cobalt-60	U	-3.3	+/-3.89	6.33		pCi/L						
Europium-154	U	9.18	+/-10.2	21.4		pCi/L						
Protactinium-231	U	24.2	+/-61.5	107		pCi/L						
Radium-228	U	12.5	+/-20.0	31.0		pCi/L						
Tin-126	U	0.485	+/-8.88	15.8		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-0.619	+/-1.89	4.24	5.00	pCi/L	JXB7	12/02/15	1255	1525771	2
Beta	U	-1.91	+/-2.34	4.82	5.00	pCi/L					

The following Analytical Methods were performed:

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

Notes:

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: December 17, 2015

Contact: Ms. Laurie Losey
Project: Soil Radioisotopes

Client Sample ID: C.4.C.6
Sample ID: 385068008
Matrix: Water
Collect Date: 02-NOV-15
Receive Date: 05-NOV-15
Collector: Client

Project: MJWC00115
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	Le	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>GammaSpec, Gamma, Liquid (Standard List) "As Received"</i>														
Actinium-227	U	-21.9	+/-33.6	55.5	26.6	+/-35.1		pCi/L		MJH1	11/16/15	0714	1521915	1
Antimony-125	U	3.50	+/-11.8	21.5	10.2	+/-11.9		pCi/L						
Bismuth-212	U	-154	+/-69.6	90.5	41.6	+/-99.6		pCi/L						
Bismuth-214	UI	0.00	+/-17.7	18.8	8.93	+/-18.3		pCi/L						
Cesium-137	U	-5.61	+/-5.85	7.69	3.58	+/-6.39	10.0	pCi/L						
Cobalt-60	U	-3.3	+/-3.89	6.33	2.77	+/-4.17		pCi/L						
Europium-154	U	9.18	+/-10.2	21.4	9.61	+/-11.0		pCi/L						
Lead-212	UI	0.00	+/-10.5	14.3	6.89	+/-11.1		pCi/L						
Lead-214	U	6.56	+/-14.7	18.1	8.65	+/-15.0		pCi/L						
Potassium-40	U	-6.75	+/-52.9	102	46.9	+/-53.0		pCi/L						
Protactinium-231	U	24.2	+/-61.5	107	51.3	+/-62.7		pCi/L						
Radium-228	U	12.5	+/-20.0	31.0	14.4	+/-20.9		pCi/L						
Thallium-208	U	-2.23	+/-5.60	8.56	4.04	+/-5.69		pCi/L						
Tin-126	U	0.485	+/-8.88	15.8	7.61	+/-8.88		pCi/L						

Rad Gas Flow Proportional Counting

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

Alpha	U	-0.619	+/-1.89	4.24	1.72	+/-1.89	5.00	pCi/L		JXB7	12/02/15	1255	1525771	2
Beta	U	-1.91	+/-2.34	4.82	2.16	+/-2.34	5.00	pCi/L						

The following Analytical Methods were performed

Method	Description
1	EPA 901.1
2	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery Test

Batch ID Recovery% Acceptable Limits

Notes:

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