Table 9
Validated SAT Soil Analytical Results Summary Table - Radioisotopes
Niagara Falls Boulevard Radiological Site
Niagara Falls Boulevard, Niagara Falls, New York
December 2013

	Location No.	S01			S02						S03			S04						S05						S06			S07		
	SAT Sample No.	**S01 (30-48)**			**SG01 (6-12)**			**S02 (12-24)**			**S03 (24-36)**			**SG02 (6-12)**			**S04 (24-36)**			**SG03 (0-6)**			**S05 (6-18)**			**S06 (30-48)**			**S07 (24-36)**		
	Sample Depth (inches)	30 - 48			6 - 12			12 - 24			24 - 36			6 - 12			24 - 36			0 - 6			6 - 18			30 - 48			24 - 36		
	Sample Matrix	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
	Sample Result	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty
Radioisotope	**[1]EPA SSAL**																														
Actinium-228 (Ac-228)	126,000	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Bismuth-212 (Bi-212)	6,330,000	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Bismuth-214 (Bi-214)	1,290,000	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Cesium-137 (Cs-137)	11	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Lead-210 (Pb-210)	418	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Lead-212 (Pb-212)	661,000	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Lead-214 (Pb-214)	7,200,000	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Potassium-40 (K-40)	25.9	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Radium-226** (Ra-226)	2.48	0.759		0.238	164		17.3	1.09		0.249	0.986		0.23	199		20.9	0.927		0.27	196		20.6	1.79		0.335	1.14		0.276	1.17		0.276
Radium-228 (Ra-228)	15.9	1.11		0.272	590		60.4	1.7		0.317	1.29		0.296	807		82.4	1.61		0.378	758		77.5	3.05		0.502	1.86		0.361	1.48		0.282
Thallium-208 (Tl-208)	2,430,000	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Thorium-228 (Th-228)	14,100	0.751		0.196	3.35		0.391	1.53		0.300	1.05		0.24	554		57.2	0.936		0.208	10.4		1.02	1.51		0.292	2.08		0.374	3.92		0.665
Thorium-230 (Th-230)	2,090	0.685		0.187	1.05		0.176	1.12		0.250	1.28		0.27	150		21.4	0.956		0.21	3.62		0.434	0.887		0.215	1.55		0.312	2.19		0.47
Thorium-232 (Th-232)	2,020	0.806		0.203	3.49		0.402	1.64		0.310	1.07		0.245	541		56	0.956		0.21	9.91		0.997	1.28		0.264	1.95		0.357	4.17		0.689
Thorium-234 (Th-234)	47,900	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Uranium-233/234 (U-233/234)	NS	0.621		0.175	144		12.7	1.05		0.228	0.697		0.186	179		15.7	0.597		0.172	143		12.5	1.05		0.244	1.2		0.246	1.41		0.275
Uranium-235/236 (U-235/236)	NS	ND			8.17		1.21	0.153		0.091	ND			10.7		1.5	ND			8.1		1.19	0.0453			0.101		0.0737	ND		
Uranium-235 (U-235)	39.2	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Uranium-238 (U-238)	3,720	0.645		0.178	153		13.4	0.878		0.205	0.593		0.169	196		17.1	0.638		0.178	147		12.9	1.11		0.252	1.14		0.241	1.37		0.271

	Location No.	S08			S16			S14			S15			S09			S10			S11			S12			S13		
	SAT Sample No.	**S08 (12-24)**			**S16 (12-24)***			**S14 (24-36)**			**S15 (24-36)**			**S09 (24-36)**			**S10 (24-36)**			**S11 (18-24)**			**S12 (24-36)**			**S13 (24-36)**		
	Sample Depth (inches)	12 - 24			12 - 24			24 - 36			24 - 36			24 - 36			24 - 36			18 - 24			24 - 36			24 - 36		
	Sample Matrix	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
	Sample Result	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty	Value (pCi/g)	Qualifier	Total Uncertainty
Radioisotope	**[1]EPA SSAL**																											
Actinium-228 (Ac-228)	126,000	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Bismuth-212 (Bi-212)	6,330,000	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Bismuth-214 (Bi-214)	1,290,000	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Cesium-137 (Cs-137)	11	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Lead-210 (Pb-210)	418	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Lead-212 (Pb-212)	661,000	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Lead-214 (Pb-214)	7,200,000	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Potassium-40 (K-40)	25.9	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Radium-226** (Ra-226)	2.48	2.81		0.517	0.944		0.258	1.14		0.269	1.12		0.250	0.94		0.309	0.938		0.217	0.98		0.237	1.16		0.246	1.09		0.253
Radium-228 (Ra-228)	15.9	5.1		0.803	1.46		0.315	1.06		0.294	1.42		0.183	1.58		0.381	1.31		0.306	1.11		0.26	1.99		0.39	1.32		0.297
Thallium-208 (Tl-208)	2,430,000	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Thorium-228 (Th-228)	14,100	4.04		0.571	1.36		0.257	0.971		0.231	0.712		0.349	3.84		0.541	0.722		0.212	1.01		0.233	1.6		0.303	0.705		0.18
Thorium-230 (Th-230)	2,090	2.34		0.401	1.39		0.260	0.869		0.215	0.799		0.191	2.09		0.365	0.883		0.229	1.01		0.232	1.08		0.243	0.719		0.184
Thorium-232 (Th-232)	2,020	3.14		0.482	1.23		0.241	0.885		0.214	0.964		0.212	4.03		0.556	0.686		0.199	0.836		0.207	1.61		0.303	0.731		0.184
Thorium-234 (Th-234)	47,900	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Uranium-233/234 (U-233/234)	NS	1.76		0.319	1.1		0.255	1.18		0.27	0.816		0.204	1.55		0.287	0.798		0.205	1.14		0.247	1.13		0.266	1.1		0.25
Uranium-235/236 (U-235/236)	NS	ND			ND			ND			ND			0.0522		0.0523	ND			ND			ND			ND		
Uranium-235 (U-235)	39.2	NA			NA			NA			NA			NA			NA			NA			NA			NA		
Uranium-238 (U-238)	3,720	1.71		0.314	0.962		0.237	1.35		0.29	0.911		0.215	1.75		0.309	0.999		0.233	1.11		0.242	1.15		0.267	0.697		0.194

Notes:

No. - Number; NS - Not Specified; NA - Not Applicable; ND - Not detected.

pCi/g = picocuries per gram.

Background sampling location.

Analytical data is based on December 2013 site assessement conducted by Weston Solutions, Inc., Site Assessment Team (SAT).

S16 (12-24)* is a duplicate of S08 (12-18).

U.S. Environmental Protection Agency (EPA) Site-Specific Action Level (SSAL) values are presented in pCi/g.

Values in red highlighted in yellow equal or exceed the EPA SSAL for the respective radioisotope.

**Radium-226 (Non-ingrowth) gamma spectroscopy via EPA GA-01-R.