Table 8A
Validated Soil Analytical Results Summary Table - Radioisotopes
Niagara Falls Boulevard Radiological Site
Niagara Falls Boulevard, Niagara Falls, New York
August 2015

	Location No.	N001-SS001			N001-SS002			N001-SS003			N001-SS004			N001-SS005			N001-SS006			N001-SS007		
	RST 3 Sample No.	**N001-SS001-1224-01**			**N001-SS002-1224-01**			**N001-SS003-0012-01**			**N001-SS004-0012-01**			**N001-SS005-1830-01**			**N001-SS006-0012-01**			**N001-SS007-0012-01**		
	Sample Depth (inches)	12 - 24			12 - 24			0 - 12			0 - 12			18 - 30			0 - 12			0 - 12		
	Sample Matrix	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
Radioisotope	**[1]EPA SSAL**																					
Actinium-228 (Ac-228)	126,000	1.01		0.32	0.7		0.2	0.95		0.29	1.25		0.37	1.28		0.41	11.5		1.39	0.76		0.22
Bismuth-212 (Bi-212)	6,330,000	ND			ND			ND			ND			ND			13.3		2.45	ND		
Bismuth-214 (Bi-214)	1,290,000	0.68	R	0.21	0.85	R	0.21	0.96	R	0.23	0.87	R	0.23	1.37	R	0.3	4.07	R	0.57	1.11	R	0.23
Cesium-137 (Cs-137)	11	0.22	J	0.09	0.2	J	0.07	0.14	J	0.09	ND			0.14	J	0.08	0.28	J	0.12	ND		
Lead-210 (Pb-210)	418	ND			ND			ND			ND			ND			ND			ND		
Lead-212 (Pb-212)	661,000	0.99		0.24	1		0.2	1.02		0.24	1.02		0.22	1.65		0.32	12.4		1.7	0.83		0.2
Lead-214 (Pb-214)	7,200,000	0.84	R	0.22	0.99	R	0.18	0.99	R	0.21	1.08	R	0.24	1.76	R	0.31	4.6	R	0.67	1.42	R	0.26
Potassium-40 (K-40)	25.9	14.9		2.85	13.2		2.15	17.7		2.96	20.4		3.25	15.6		3.08	13.5		2.36	13.9		2.29
Radium-226* (Ra-226)	2.48	0.86		0.23	0.71		0.17	0.96		0.25	1.13		0.28	1.62		0.30	4.43		0.68	1.27		0.29
Radium-228 (Ra-228)	15.9	1.01		0.32	0.7		0.2	0.95		0.29	1.25		0.37	1.28		0.41	11.5		1.39	0.76		0.22
Thallium-208 (Tl-208)	2,430,000	0.38		0.12	0.36		0.08	0.44		0.11	0.49		0.13	0.5		0.15	4.39		0.55	0.31		0.09
Thorium-228 (Th-228)	14,100	0.81		0.17	1.13		0.22	0.94		0.19	0.94		0.2	1.36		0.24	10.8		1.09	0.83		0.19
Thorium-230 (Th-230)	2,090	0.84		0.17	1.22		0.23	1.04		0.2	1.06		0.21	1.03		0.2	3.96		0.5	1.06		0.21
Thorium-232 Th-232)	2,020	0.71		0.16	0.96		0.2	0.92		0.19	1		0.2	1.39		0.24	9.56		0.99	0.82		0.18
Thorium-234 Th-234)	47,900	ND			ND			ND			ND			ND			ND			ND		
Uranium-233/234 (U-233/234)	NS	0.79		0.19	1.63		0.28	1.12		0.22	0.87		0.2	0.79		0.18	3.35		0.44	0.71		0.17
Uranium-235/236 (U-235/236)	NS	0.03	J	0.04	0.07	J	0.06	ND			ND			0.07	J	0.06	0.13	J	0.08	0.07	J	0.06
Uranium-235 (U-235)	39.2	ND			ND			ND			ND			ND			ND			ND		
Uranium-238 (U-238)	3,720	0.8		0.19	1.09		0.22	1.03		0.21	0.78		0.18	1.05		0.21	3.92		0.49	0.81		0.18

	Location No.	N002-SS001			N002-SS002			N002-SS003			N002-SS004			N002-SS005			N002-SS006			N002-TRENCH		
	RST 3 Sample No.	**N002-SS001-0012-01**			**N002-SS002-0012-01**			**N002-SS003-0012-01**			**N002-SS004-0012-01**			**N002-SS005-0012-01**			**N002-SS006-2436-01**			**N002-TRENCH-0003-01**		
	Sample Depth (inches)	0 - 12			0 - 12			0 - 12			0 - 12			0 - 12			24 - 36			0 - 3		
	Sample Matrix	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
Radioisotope	**[1]EPA SSAL**																					
Actinium-228 (Ac-228)	126,000	5.19		0.72	13.6		1.59	1.42		0.3	1.37		0.32	0.72		0.29	1		0.32	ND		
Bismuth-212 (Bi-212)	6,330,000	5.81		1.81	16.1		2.92	1.93		0.59	2.29		0.98	ND			ND			ND		
Bismuth-214 (Bi-214)	1,290,000	4.23	R	0.62	4.62	R	0.74	0.93	R	0.21	0.93	R	0.25	0.96	R	0.26	0.63	R	0.21	ND		
Cesium-137 (Cs-137)	11	ND			ND			ND			0.26	J	0.09	ND			ND			ND		
Lead-210 (Pb-210)	418	ND			ND			ND			ND			ND			ND			ND		
Lead-212 (Pb-212)	661,000	5.56		0.81	13.6		1.83	1.14		0.23	1.12		0.27	1.08		0.26	0.9		0.22	0.16		0.06
Lead-214 (Pb-214)	7,200,000	4.81	R	0.64	4.58	R	0.67	0.89	R	0.18	0.94	R	0.22	0.94	R	0.26	0.71	R	0.2	0.29	R	0.1
Potassium-40 (K-40)	25.9	8.53		1.89	15.9		2.77	17		2.57	19.3		3.15	15.6		3	12.9		2.59	0.89	J	0.61
Radium-226* (Ra-226)	2.48	4.13		0.53	4.6		0.68	1.08		0.22	0.87		0.25	0.96		0.28	0.86		0.23	0.3		0.13
Radium-228 (Ra-228)	15.9	5.19		0.72	13.6		1.59	1.42		0.3	1.37		0.32	0.72		0.29	1		0.32	0.15	J	0.13
Thallium-208 (Tl-208)	2,430,000	2.11		0.3	5.01		0.61	0.46		0.1	0.4		0.12	0.41		0.12	0.31		0.1	0.06		0.03
Thorium-228 (Th-228)	14,100	3.94		0.5	7.97		0.85	1.12		0.22	0.94		0.18	0.86		0.18	0.89		0.22	0.2	J+	0.11
Thorium-230 (Th-230)	2,090	3.1		0.42	3.18		0.43	1.18		0.22	0.87		0.17	0.9		0.19	0.79		0.2	0.35	J+	0.14
Thorium-232 Th-232)	2,020	3.41		0.45	7.17		0.78	1.06		0.21	0.87		0.17	0.9		0.19	1.02		0.24	0.17		0.1
Thorium-234 Th-234)	47,900	ND			ND			ND			ND			ND			ND			ND		
Uranium-233/234 (U-233/234)	NS	2.67		0.38	2.5		0.37	1.41		0.25	1.31		0.25	0.72		0.17	0.65		0.16	0.24		0.1
Uranium-235/236 (U-235/236)	NS	0.05	J	0.05	0.2	J	0.1	0.04	J	0.04	0.06	J	0.06	0.08	J	0.06	0.05	J	0.05	ND		
Uranium-235 (U-235)	39.2	ND			ND			ND			ND			ND			ND			ND		
Uranium-238 (U-238)	3,720	2.56		0.37	2.36		0.36	1.01		0.21	1.19		0.24	0.69		0.17	0.73		0.18	0.25		0.1

Notes:

RST 3 - Removal Support Team 3.

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

J - An unusually uncertain or estimated result.

R - A rejected result, the problems (quantitative or qualitative) are so severe that the data cannot be used.

pCi/g - picocuries per gram; µg/L - micrograms per liter

[1]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 (21-day ingrowth) gamma spectroscopy via EPA GA-01-R (soil only).

Table 8A
Validated Soil Analytical Results Summary Table - Radioisotopes
Niagara Falls Boulevard Radiological Site
Niagara Falls Boulevard, Niagara Falls, New York
August 2015

	Location No.	N003-SS001			N003-SS002			N003-SS003						Rinsate Blank			Rinsate Blank		
	RST 3 Sample No.	**N003-SS001-1022-01**			**N003-SS002-2436-01**			**N003-SS003-1224-01**			**N003-SS003-1224-02[1]**			**RB-N-150811**			**RB-N-150812**		
	Sample Depth (inches)	10 - 22			24 - 36			12 - 24			12 - 24			NA			NA		
	Sample Matrix	Soil			Soil			Soil			Soil			Aqueous			Aqueous		
	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 (µg/L)	Qualifier	Total Uncertainty	Value (µg/L)	Qualifier	Total Uncertainty
Radioisotope	**[1]EPA SSAL**	**Background**																	
Actinium-228 (Ac-228)	126,000	0.36		0.12	0.84		0.2	2.42		0.47	2.17		0.48	ND			ND		
Bismuth-212 (Bi-212)	6,330,000	1.05		0.45	1.41		0.52	3.15		1.37	2.69		0.97	ND			ND		
Bismuth-214 (Bi-214)	1,290,000	0.76	R	0.15	0.59	R	0.18	1.32	R	0.27	1.13	R	0.29	ND			ND		
Cesium-137 (Cs-137)	11	ND			ND			0.06	J	0.07	0.07	J	0.07	ND			ND		
Lead-210 (Pb-210)	418	ND			ND			ND			ND			ND			ND		
Lead-212 (Pb-212)	661,000	0.46		0.13	0.62		0.15	2.1		0.37	2.2		0.38	ND			ND		
Lead-214 (Pb-214)	7,200,000	0.67	R	0.14	0.73	R	0.17	1.32	R	0.29	1.06	R	0.24	ND			ND		
Potassium-40 (K-40)	25.9	3.55		0.86	14.8		2.34	11.1		2.05	8.09		2.05	ND			ND		
Radium-226* (Ra-226)	2.48	0.69		0.14	0.65		0.2	1.1		0.22	1.43		0.28	NA			NA		
Radium-228 (Ra-228)	15.9	0.36		0.12	0.84		0.2	2.42		0.47	2.17		0.48	NA			NA		
Thallium-208 (Tl-208)	2,430,000	0.25		0.06	0.26		0.07	0.82		0.14	0.8		0.18	ND			ND		
Thorium-228 (Th-228)	14,100	0.56		0.15	0.63		0.16	2.31		0.34	2.63		0.38	ND			ND		
Thorium-230 (Th-230)	2,090	0.74		0.18	0.8		0.18	1.65		0.27	1.96		0.31	0.22	J+	0.14	0.19	J+	0.12
Thorium-232 Th-232)	2,020	0.59		0.15	0.51		0.14	2.28		0.33	2.79		0.39	ND			ND		
Thorium-234 Th-234)	47,900	ND			ND			ND			ND			ND			ND		
Uranium-233/234 (U-233/234)	NS	0.87		0.19	0.48		0.14	1.73		0.3	1.74		0.3	ND			ND		
Uranium-235/236 (U-235/236)	NS	0.06	J	0.05	ND			ND			0.1	J	0.07	ND			ND		
Uranium-235 (U-235)	39.2	ND			ND			ND			ND			ND			ND		
Uranium-238 (U-238)	3,720	0.86		0.19	0.52		0.15	1.62		0.29	1.84		0.3	ND			ND		
Radium-226**	NS	NA			NA			NA			NA			0.06	J+	0.05	ND		
Radium-228***	NS													ND			ND		

Notes:

RST 3 - Removal Support Team 3.

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

Background sampling location.

J - An unusually uncertain or estimated result.

J+ - An unusually uncertain or estimated result biasedhigh.

R - A rejected result, the problems (quantitative or qualitative) are so severe that the data cannot be used.

pCi/g - picocuries per gram; µg/L - micrograms per liter

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

N003-SS003-1224-02[1] is a duplicate of N003-SS003-1224-01

Location Nos. N003-SS002 & N003-SS003 are located on Property N002 - 9540 Niagara Falls Boulevard.

*Radium-226 (21-day ingrowth) gamma spectroscopy via EPA GA-01-R(soil only).

**Radium-226 Gas Flow Proportional Counter (GFPC) via EPA SW-846 Method 9315 (aqueous only).

***Radium-228 GFPC via EPA SW-846 Method 9320 (aqueous only).