

AECOM

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November 25, 2008

Project Number: 80-510

Mr. Andrew Keim
Indian and Northern Affairs Canada
(by email)

Dear Mr. Keim:

**Re: Plans for Abandonment and Restoration of the
Rankin Inlet Solid Waste Site (License No. NWB3GRA0207)**

Gartner Lee Limited doing business as AECOM has been retained by the Hamlet of Rankin Inlet to prepare an Abandonment and Restoration Plan for the Rankin Inlet Solid Waste Site. Our proposed scope of work includes:

1. Collection and review of available historical information on the landfill site;
2. Environmental site assessment including test pit investigation to delineate the extent of waste and soil and groundwater sampling;
3. Development of a soil remediation plan to relocate contaminated soil that has been impacted by landfill leachate for use as final cover over the waste;
4. Grading and final cover design to minimize infiltration of precipitation into the waste and reduce leachate generation;
5. Preparation of site plan and closure design drawings delineating the extent of waste and proposed closure improvements including grading and surface water drainage;
6. Preparation of an Abandonment and Restoration Plan outlining the proposed implementation schedule, post-closure landuse, recommended monitoring program, and post-closure maintenance requirements.

We have completed the Environmental Site Assessment investigations and a topographic survey of the landfill area. Please find attached test pit investigation location plan and soil and groundwater sampling results for your information. A soil remediation plan is being developed based on this information that will identify areas where soil exceeds applicable CCME criteria. Soil that exceeds applicable CCME criteria will be excavated and relocated to the waste disposal area for use as interim soil cover and graded to provide positive drainage off the landfilled waste. Contaminated soil will be placed under the final landfill cover that will likely be comprised of a geomembrane or geosynthetic clay liner (GCL) and granular material (possibly crushed quarry rock).

The above work will be carried out this winter to support completion of the Abandonment and Restoration Plan by May 31, 2009 and implementation of closure improvements during Summer 2009.

We trust this letter and attached information meet your present requirements to address your solid waste comments in your letter dated July 23, 2008. Should you require any additional information or have any questions please feel free to contact the undersigned at your convenience.

Sincerely,

Gartner Lee Limited doing business as AECOM

A handwritten signature in dark ink, appearing to read 'Darrin Johnson', with a long horizontal flourish extending to the right.

Darrin Johnson, P.Eng.
darrin.johnson@aecom.com

DCJ:

Encl.

cc: File

Saurabh Dhavale, Dept. of Community & Government Services (by email)

Phyllis Beaulieu, Nunavut Water Board (by email)

Stephanie Charity, R.J. Burnside & Associates Limited (by email)

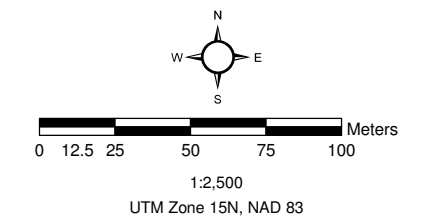


Legend

- Surface Water Sampling Locations
- Exceeds CCME CWQG Criteria
- Test Pit Locations
- Exceeds CCME CSQG or PHC CWS Criteria
- Seepage Outfall
- Perimeter Road
- Inferred Area Contaminated by Fuel
- Inferred Boundary of Solid Waste Site



Map notes:
Imagery - Digital Globe 2008, extracted from Google Earth Pro
All other data from AECOM, 2008



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Project: Rankin Inlet Existing Solid Waste Site
Location: Rankin Inlet, Nunavut

Test Pit and Surface Water Sampling Locations, Inferred Extent of Waste and Inferred Fuel Contaminated Area

31 October 2008

AECOM

Figure 1

Rankin Inlet Waste Site - Summary of Analytical Results for Surface Water and Seepage Samples

Parameters	Units	CCME CWQG	TP19-120	SW 1	SW2	SW3	SW4	SW4 R
		Aquatic Life - Freshwater	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	22-AUG-08	22-AUG-08
Physical Tests								
Conductivity	umhos/cm		485	811	922	260	1600	1610
Hardness (as CaCO3)	mg/L		236	281	189	99.9	436	438
pH	pH units	6.5-9.0	7.64	8.06	7.35	8.29	7.83	7.84
TDS (Calculated)	mg/L		302	479	538	139	1040	1240
Turbidity	NTU		95	2.0	0.65	0.90	5.3	3.8
Anions and Nutrients								
Alkalinity, Total (as CaCO3)	mg/L		114	158	144	88	199	199
Bicarbonate (HCO3)	mg/L		140	193	175	107	243	242
Carbonate (CO3)	mg/L		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Chloride (Cl) - Dissolved	mg/L		20	125	145	24	245	246
Fluoride (F) - Dissolved	mg/L		0.2	<0.1	0.1	0.1	0.2	0.2
Hydroxide (OH)	mg/L		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Nitrate+Nitrite-N - Dissolved	mg/L		1.60	0.013	0.569	0.016	0.977	0.972
Sulphate (SO4) - Dissolved	mg/L		109	101	129	14	348	346
Total Metals								
Aluminum (Al)-Total	mg/L		0.987	0.024	0.019	0.036	0.029	0.032
Antimony (Sb)-Total	mg/L		0.001	0.001	0.001	<0.001	0.001	0.002
Arsenic (As)-Total	mg/L	0.005	0.0033	0.0025	0.0012	0.0071	0.0020	0.0021
Barium (Ba)-Total	mg/L		0.0381	0.0797	0.0186	0.0228	0.0379	0.0393
Beryllium (Be)-Total	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bismuth (Bi)-Total	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Boron (B)-Total	mg/L		0.09	<0.03	0.33	<0.03	0.89	0.97
Cadmium (Cd)-Total	mg/L	0.000017	0.00002	0.00002	0.00003	0.00001	0.00016	0.00016
Calcium (Ca)-Total	mg/L		70.4	84.4	47.7	31.2	145	153
Cesium (Cs)-Total	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)-Total	mg/L	0.0089(III), 0.001(VI)	0.004	0.001	<0.001	<0.001	0.002	0.003
Cobalt (Co)-Total	mg/L		0.0026	0.0004	0.0004	0.0003	0.0041	0.0047
Copper (Cu)-Total	mg/L	0.002-0.004	0.043	0.020	0.035	0.008	0.024	0.023
Iron (Fe)-Total	mg/L	3.00	28.7	0.18	0.09	0.25	0.90	0.91
Lead (Pb)-Total	mg/L	0.001-0.007	0.0009	<0.0005	<0.0005	0.0006	0.0007	0.0006
Magnesium (Mg)-Total	mg/L		7.24	14.7	11.0	4.20	22.3	23.6
Manganese (Mn)-Total	mg/L		0.376	0.0227	0.0117	0.0114	0.273	0.306
Mercury (Hg)-Total	mg/L	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (Mo)-Total	mg/L	0.073	0.0014	0.0012	0.0006	0.0003	0.0014	0.0016
Nickel (Ni)-Total	mg/L	0.025-0.15	0.015	0.009	0.006	0.004	0.024	0.026
Phosphorus (P)-Total	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium (K)-Total	mg/L		6.4	5.9	10.9	1.6	20.6	21.9
Rubidium (Rb)-Total	mg/L		0.0091	0.0110	0.0018	0.0023	0.0058	0.0062
Selenium (Se)-Total	mg/L	0.001	0.002	0.002	0.005	0.002	0.008	0.008
Silver (Ag)-Total	mg/L	0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sodium (Na)-Total	mg/L		13.8	52.5	106	12.5	158	168
Strontium (Sr)-Total	mg/L		0.216	0.378	0.244	0.0876	0.776	0.837
Tellurium (Te)-Total	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium (Tl)-Total	mg/L	0.0008	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001
Tin (Sn)-Total	mg/L		<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Titanium (Ti)-Total	mg/L		0.0341	0.0016	<0.0009	0.0009	0.0021	0.0015
Tungsten (W)-Total	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0009
Uranium (U)-Total	mg/L		0.0011	0.0014	0.0005	0.0002	0.0012	0.0012
Vanadium (V)-Total	mg/L		0.003	<0.001	<0.001	<0.001	<0.001	0.001
Zinc (Zn)-Total	mg/L	0.03	0.02	0.02	0.02	0.01	0.08	0.08
Zirconium (Zr)-Total	mg/L		0.0009	<0.0004	<0.0004	<0.0004	0.0010	0.0004
Dissolved Metals								
Calcium (Ca)-Dissolved	mg/L		79.3	86.1	54.2	32.2	139	142
Iron (Fe)-Dissolved	mg/L		5.95	0.15	0.08	0.24	0.49	0.46
Magnesium (Mg)-Dissolved	mg/L		9.13	16.0	13.1	4.73	21.6	20.2
Manganese (Mn)-Dissolved	mg/L		0.162	0.0207	0.0130	0.0151	0.219	0.223
Potassium (K)-Dissolved	mg/L		7.65	6.18	12.9	1.87	19.3	22.5
Sodium (Na)-Dissolved	mg/L		14.8	55.6	126	14.1	143	138
Volatile Organic Compounds								
Benzene	mg/L	0.37	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethyl Benzene	mg/L	0.09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
o-Xylene	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
m+p-Xylenes	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Xylene, (total)	mg/L		<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Hydrocarbons								
F2 (C10-C16)	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
F3 (C16-C34)	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
F4 (C34-C50)	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
F1-BTEX	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C6-C10)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Notes:

1. Yellow denotes exceedancees above CCME canadian Water Quality Guidelinesfor the Protection of Aquatic Life - Freshwater. Last Updated 2007.
2. Orange denotes values are below the detection limts, which are the lowest that ALS lab can reach, but are higher than CCME guidelines.

Rankin Inlet Waste Site - Summary of Analytical Results for Soil Samples

Parameters	Units	CCME CSQG - Coarse Soil		CCME PHC CWS - Coarse Soil		TP7 - 0	TP7 - 60	TP9-0	TP11-0	TP11-30	TP12-60	TP15-90	TP17 - 0	TP18-30	TP19-0	TP19- 60	TP20-60	TP21 - 30	TP21 - 90	TP23- 0	TP24 - 0	TP25 - 30	TP26 - 30	TP27 - 30	TP28 - 30	TP28- 30 R	TP29-30	TP30-30	TP30-30 R	
		Residential/ Parkland	Commercial	Residential/ Parkland	Commercial	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	21-AUG-08	22-AUG-08	22-AUG-08	22-AUG-08		
Metals																														
Antimony (Sb)	mg/kg	20	40			<0.07	0.10	<0.07	<0.07	<0.07	<0.07	<0.07	0.09	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		
Arsenic (As)	mg/kg	12	12			4.08	13.3	14.6	16.7	9.63	15.7	7.73	1.83	9.37	9.39	6.20	7.10	6.75	2.35	8.40	6.45	8.56	14.8	5.89	7.04	7.63	7.15	9.63	7.68	
Barium (Ba)	mg/kg	500	2000			70.0	78.0	99.2	94.8	82.1	92.0	64.7	104	92.2	84.0	70.5	84.1	45.9	53.4	56.9	59.5	64.9	60.3	32.5	58.7	55.2	74.9	54.0	53.6	
Beryllium (Be)	mg/kg	4	8			0.21	0.12	0.16	0.17	0.12	0.11	0.10	<0.06	0.12	0.10	0.11	0.12	0.13	0.14	0.11	0.16	0.12	0.11	0.10	0.10	0.11	0.11	0.10		
Cadmium (Cd)	mg/kg	10	22			0.43	0.57	0.19	0.09	0.07	0.06	0.06	0.21	0.05	0.08	0.03	0.05	0.06	0.22	0.07	0.06	0.05	0.07	0.03	0.03	0.03	0.03	0.06	0.04	
Chromium (Cr)	mg/kg	64	87			50.4	61.7	60.1	65.9	52.4	51.3	46.4	3.5	56.6	59.4	53.1	61.9	93.3	145	89.9	58.2	68.2	53.7	53.1	52.9	50.5	50.2	80.3	64.7	
Cobalt (Co)	mg/kg	50	300			6.44	16.1	16.5	18.7	10.3	14.0	11.5	3.73	21.1	13.5	10.7	13.7	16.3	27.4	16.2	11.5	12.4	15.9	9.11	12.4	11.5	10.4	13.9	14.4	
Copper (Cu)	mg/kg	63	91			48.3	77.0	64.5	55.8	61.7	46.7	46.1	42.7	34.2	233	38.0	71.5	45.9	146	43.5	57.6	53.3	125	45.4	38.8	36.9	68.7	88.1	64.9	
Lead (Pb)	mg/kg	140	260			156	24.7	58.3	6.17	4.38	5.78	3.59	1.47	3.95	4.89	3.35	3.72	2.68	1.14	4.57	3.11	3.64	3.38	2.38	2.92	2.90	3.10	3.08	3.39	
Mercury (Hg)-Total	mg/kg	6.6	24			<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Molybdenum (Mo)	mg/kg	10	40			1.19	1.13	0.67	0.85	0.54	0.81	0.55	0.43	0.68	0.72	0.55	0.51	0.39	0.09	0.42	0.44	1.62	0.73	0.32	0.42	0.44	0.42	0.37	0.55	
Nickel (Ni)	mg/kg	50	50			26.0	40.0	38.1	36.6	26.6	28.1	27.1	25.7	23.6	27.3	23.2	29.8	33.4	69.8	31.9	25.5	29.8	27.0	20.9	24.1	23.5	24.3	39.5	32.8	
Selenium (Se)	mg/kg	1	2.9			<0.1	0.3	0.2	0.2	<0.1	0.1	<0.1	1.3	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	
Silver (Ag)	mg/kg	20	40			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Thallium (Tl)	mg/kg	1	1			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Tin (Sn)	mg/kg	50	300			<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
Uranium (U)	mg/kg	23	33			0.81	0.63	0.59	0.58	0.57	0.60	0.49	0.26	0.55	0.58	0.49	0.46	0.37	0.10	0.61	0.48	0.51	0.60	0.48	0.47	0.49	0.45	0.40	0.47	
Vanadium (V)	mg/kg	130	130			22.4	33.6	38.4	45.0	32.2	38.1	25.9	3.72	37.3	34.5	31.9	38.5	38.3	35.5	41.0	30.1	37.1	36.1	25.4	26.8	26.8	30.8	35.4	30.9	
Zinc (Zn)	mg/kg	200	360			328	200	58	49	37	34	26	32	38	36	32	38	34	50	41	31	42	33	29	32	32	31	33	29	
Hydrocarbons																														
Benzene	mg/kg	0.011	0.03			<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Ethylbenzene	mg/kg	0.082	0.082			<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Toluene	mg/kg	0.37	0.37			<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
o-Xylene	mg/kg					<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Xylenes, m+p	mg/kg					<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Xylenes	mg/kg	11	11			<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.09	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	
F2-Naphth	mg/kg					74	-	70	-	-	-	-	-	-	<5	-	-	5	-	-	-	-	-	-	-	-	-	-	-	
F3-PAH	mg/kg					410	-	320	-	-	-	-	-	-	60	-	-	21	-	-	-	-	-	-	-	-	-	-	-	
F2 (C10-C16)	mg/kg			150	260	74	100	70	21	170	<5	<5	<5	<5	<5	<5	<5	5	6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
F3 (C16-C34)	mg/kg			300	1700	410	1300	320	290	460	<5	21	1600	<5	60	5	32	21	120	32	15	32	15	30	32	10	<5	<5	<5	
F4 (C34-C50)	mg/kg			2800	3300	23	290	100	91	54	<5	<5	660	<5	35	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Total Hydrocarbons (C6-C50)	mg/kg					510	1700	490	400	680	<5	21	2300	<5	95	5	32	26	130	32	15	32	15	30	32	10	<5	<5	<5	
F1-BTEX	mg/kg					<10	<5	<5	<5	<5	<5	<5	<20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
F1 (C6-C10)	mg/kg			30	320	<10	<5	<5	<5	<5	<5	<5	<20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Polycyclic Aromatic Hydrocarbons																														
Acenaphthene	mg/kg					<0.01	-	<0.05	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg					<0.01	-	<0.05	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Acridine	mg/kg					<0.05	-	<0.05	-	-	-	-	-	-	<0.05	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg					<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	1	10			<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.7	0.7			<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	1	10			<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg					<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	1	10			<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg					<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	1	10			<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg					<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	mg/kg					<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3 cd)pyrene	mg/kg	1	10			<0.01	-	<0.01																						