July 1, 2010

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Director of Lands
Kivalliq Inuit Association
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Dear Ms. Beaulieu and Mr. Manzo:

RE: Ferguson Lake Water Quality Hydrocarbon Testing

On November 29, 2007 a D-4 Bulldozer fell through the ice at a pressure ridge while clearing the ice of snow for an airstrip. UTM coordinates averaged at 14V 607126E, 6976459N. On December 19, 2007 surface water samples were collected at the potentially contaminated site and at a reference site 10 meters away. The results summarized using the results of the subsequent analysis for Polycyclic Aromatic Hydrocarbons (PAHs), Light Extractable Hydrocarbons (LPEH) and Heavy Extractable Hydrocarbons (HPEH) indicated the presence of a small amount of motor oil at the time of sampling at the potentially contaminated site and not at the reference site. Recommendations were made for follow-up water quality sampling at the site to ensure that no further contamination has occurred.

A baseline study of Ferguson Lake water quality was conducted in 2008. Sampling at the potentially contaminated site was included in the scope of work. The bulldozer was retrieved from lake bottom on July 23 of 2008. Water quality samples were taken before, during and after at the potentially contaminated site as well as at a reference site 100 meters from the area. During retrieval a small hydrocarbon slick appeared on water surface. The quantity of product was less than 100 litres and was reported internally. Spill pads were placed on the adjacent shoreline relative to immediate wind direction.

Samples from before and during the retrieval process indicated that concentrations were below detection limits at both the localized site and the reference site for LPEH, HPEH and glycols(Table 1) . All parameters analyzed for PAH were below detection limits, with the exception of Phenanthrene. Concentration of Phenanthrene did not exceed the Canadian Council of Ministers of the Environment (CCME, 2006) Guidelines. Samples

taken after the retrieval indicated a slight increase in concentration of HEPH at the potential contamination site (<detection to 290 µg/L). The reference site parameters did not change. A comparison of chromatogram distribution with samples taken in December 2007 indicates the petroleum product was likely motor oil (nC19 - nC32 hydrocarbon compounds). The concentration of HEPH after retrieval of the bulldozer was lower than the average indicated by analysis of the water sampled after submersion (290 µg/L and 1.6 µg/L).

The samples were analyzed for Ethylene, Diethylene and 1,2- Propylene Glycols. None of the water samples had glycol concentrations above the detection limit of <5.0 mg/l. The recommended holding times for glycols was exceeded by 5-7 days due to shipping constraints out of Ferguson Lake and Rankin Inlet.

The potential contamination from the original incident of submersion has not been realized. However, further testing for water and sediment quality is recommended to ensure no contamination from the retrieval process.

References

CCME. 2006. *Canadian water quality guidelines for the protection of aquatic life: Summary table*. Updated 2006. In: *Canadian environmental quality guidelines*, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Rescan ™ Environmental Services Ltd

Your truly,

Michelle Tanguay
Environment Coordinator

CC: Andrew Keim,
Water Resource Officer,
INAC

Table 1
Polycyclic Aromatic and Extractable Hydrocarbon Concentrations

Hydrocarbons	Site 1 During Recovery	Site 1 After Recovery	Reference Site (100 m away)	Site 1 Before Recovery	CCME [1,2]
EPH (10-19)	<0.25	<0.25	<0.25	<0.25	-
EPH (19-32)	<0.25	0.29	<0.25	<0.25	-
LEPH	<0.25	<0.25	<0.25	<0.25	-
HEPH	<0.25	0.29	<0.25	<0.25	-
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	<0.000050	<0.000050	<0.000050	<0.000050	5.8
Acenaphthylene	<0.000050	<0.000050	<0.000050	<0.000050	-
Acridine	<0.000050	<0.000050	<0.000050	<0.000050	4.4
Anthracene	<0.000050	<0.000050	<0.000050	<0.000050	0.012
Benz(a)anthracene	<0.000050	<0.000050	<0.000050	<0.000050	0.018
Benzo(a)pyrene	<0.000010	<0.000010	<0.000010	<0.000010	0.015
Benzo(b)fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	-
Benzo(k)fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	-
Benzo(g,h,i)perylene	<0.000050	<0.000050	<0.000050	<0.000050	-
Chrysene	<0.000050	<0.000050	<0.000050	<0.000050	-
Dibenz(a,h)anthracene	<0.000050	<0.000050	<0.000050	<0.000050	-
Fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	0.04
Fluorene	<0.000050	<0.000050	<0.000050	<0.000050	3
Indeno(1,2,3-c,d)pyrene	<0.000050	<0.000050	<0.000050	<0.000050	-
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	1.1
Phenanthrene	0.000053	0.000124	0.000068	0.00062	0.04
Pyrene	<0.000050	<0.000050	<0.000050	<0.000050	0.025
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	3.4

Note < indicates below detection limits

dashes indicate no data available

all units in mg/L

[1] Canadian Council of Ministers of the Environment, 2006. Canadian water quality guidelines for the protection of aquatic life

[2] Interim guideline