



Government  
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Fisheries  
and Oceans

Pêches  
et Océans

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12 October 1993

Yvette Morin  
Secretary  
Technical Advisory Committee  
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DEPARTMENT OF INDIAN  
AFFAIRS AND NORTHERN  
DEVELOPMENT  
NORTHERN AFFAIRS  
PROJECT  
OCT 12 1993  
WATER RESOURCES  
DIVISION — YELLOWKNIFE  
N.W.T.

Dear Ms. Morin:

Re: Broughton Island/Clyde River Sanitary Site Clean-Up  
Draft Report Review

In response to your letter of September 23, 1993, please accept the following comments from the Department of Fisheries and Oceans (DFO) regarding the sanitary site clean-up draft reports for Broughton Island and Clyde River:

#### **BROUGHTON ISLAND**

##### 2.3 - History of Site Operations

Water samples were taken from two locations near the old waste disposal area and the results were included in a separate report from M.M. Dillon Ltd. to Municipal and Community Affairs (MACA). Were these samples of surface water or ground water? Since it is stated at the bottom of page 11 in Section 4.0 - Closure Concept, and on page 17 in Section 5.6 - Monitoring, that ground and surface water samples are to be collected and analyzed, why were not both done in this case?

It is stated in the water quality sample report that the samples were compared to the Guidelines for Canadian Drinking Water Quality, 1989, and the Guidelines for Municipal Type Wastewater Discharge in the NWT, 1981. However the municipal wastewater guideline limits are not shown on Table #1, as are the drinking water quality limits. Also, the most up to date guidelines should have been used.

The results of these two water samples show elevated levels of turbidity, colour and iron based on the 1989 Guidelines for Canadian Drinking Water Quality. These guidelines recommend resampling as the minimum action required when the maximum acceptable concentration for a contaminant is exceeded, in order to

confirm the findings. Are there any plans to resample for these parameters? Ideally, several samples should be taken over a period of time to detect any variation in those samples and to measure the error in that variation. This would provide a much better indication of the potential for long-term impacts on the aquatic environment.

Magnesium also exceeded the limit shown in Table #1, although I could not find any limit at all for magnesium in the 1989 Guidelines for Canadian Drinking Water Quality or in the 1992 Guidelines for Municipal Type Wastewater. This limit should be re-examined to determine whether or not the level of magnesium in the sample does or does not exceed a safe level.

The levels of zinc (0.049 mg/L) and ammonia nitrogen (0.094 mg/L) found in the sample taken from site "K" exceed the limits of 0.02 mg/L for zinc and 0.01 mg/L for ammonia nitrogen set out in Environment Canada's 1979 Water Quality Sourcebook in their Guidelines for Minimal Risk of Adverse Effects to Marine Aquatic Life. The lead level from the same site (0.0043 mg/L) comes close to the maximum acceptable level of 0.0056 mg/L set by the U.S. EPA's 1986 Water Quality Criteria for the Protection of Aquatic Life in the Marine Environment. DFO recommends that these parameters should also be re-sampled and re-analyzed to determine whether or not they are present at levels that are deleterious to marine life.

Why were the water samples not analyzed for the presence of organics such as oil and grease, and phenols? Since these are likely to be found in a waste disposal area such as this, and could potentially have a negative effect on fish or fish habitat, DFO recommends that samples should be analyzed for these parameters.

The statement is made in the cover letter of the water quality report that, "The plan to remove all previously deposited wastes from the shore area will minimize potential long term effects of wastes on the adjoining surface waters and the Community's fishing area." However, on page 15 in Section 5.6 - Main Domestic Disposal Area "N", it clearly states that the domestic disposal area identified as "N" (which received waste from the 1980's until 1992) is to be left in place on the beach. Will this area not be subjected to erosion by water and ice the same as the other waste areas on the beach? In order to prevent potential contamination of the ocean through erosion and/or through deleterious run-off or leachate, DFO recommends that this waste disposal area be relocated to the new waste disposal facility, along with the other domestic waste piles identified in the study.

### Section 3.0 - Regulatory Requirements

The paragraph beneath the heading "The Department of Fisheries and

ceans" is not entirely correct and is therefore misleading. DFO has a responsibility under the Fisheries Act to protect fish and fish habitat from negative impacts. It is a requirement of the Fisheries Act that all substances discharged into water (salt or fresh) frequented by fish, or discharged into a place where it may enter water frequented by fish, be non-deleterious to fish and fish habitat. Under the Fisheries Act, "fish" include all life stages of "fish, shellfish, crustaceans, marine animals and marine plants", while "fish habitat" is defined as those parts of the environment "on which fish depend, directly or indirectly, in order to carry out their life processes".

#### 5.7 - Main Metal Dump

Photo plate 5 does not show the proposed hauling route. Is the river to be crossed when hauling scrap metal considered fish habitat?

DFO recommends that any hauling of scrap metal across any water bodies take place after freeze up of those water bodies in order to prevent erosion of banks or shorelines, and to prevent the deposit of any deleterious substance or excess sedimentation into the water bodies.

#### 5.8 - Monitoring

Yearly water quality monitoring of leachate and surface water runoff from the closed landfill is recommended for a period of three years. Is this landfill the site "N" referred to in Section 5.6, or is this the new landfill area? What water quality parameters will be analyzed? What guidelines will be followed when limiting the water quality parameters? What will happen if any of the water quality parameters is found to exceed the limits set out in those guidelines? Why was a monitoring period of three years chosen?

### **CLYDE RIVER**

#### 2.3 - History of Site Operations

Water samples were taken from two locations near the old waste disposal area and the results were included in a separate report from M.M. Dillon Ltd. to Municipal and Community Affairs (MACA). It is stated in the water quality sample report that the samples were compared to the Guidelines for Canadian Drinking Water Quality, 1989, and the Guidelines for Municipal Type Wastewater Discharge in the NWT, 1981. However the municipal wastewater guideline limits are not shown on Table #1, as are the drinking

water quality limits. Also, the most up to date guidelines should have been used.

The results of these two water samples show elevated levels of turbidity, colour and iron based on the 1989 Guidelines for Canadian Drinking Water Quality. These guidelines recommend resampling as the minimum action required when the maximum acceptable concentration for a contaminant is exceeded, in order to confirm the findings. Are there any plans to resample for these parameters? The iron levels of 8.28 mg/L and 2.16 mg/L were particularly high. Environment Canada's 1979 Water Quality Sourcebook in their Guidelines for Minimal Risk of Adverse Effects to Marine Aquatic Life recommend that iron levels not exceed 0.05 mg/L, yet it is stated in the cover letter of the water quality report that, "The presence of iron is not of concern.". What information is this statement based on?

The levels of zinc (0.102 and 0.088 mg/L), ammonia nitrogen (27.6 and 19.5 mg/L), copper (0.024 and 0.032 mg/L) and nickel (0.007 mg/L) exceed the limits of 0.02 mg/L for zinc, 0.01 mg/L for ammonia nitrogen, 0.01 mg/L for copper and 0.002 mg/L for nickel set out in Environment Canada's 1979 Water Quality Sourcebook in their Guidelines for Minimal Risk of Adverse Effects to Marine Aquatic Life. DFO recommends that these parameters should also be re-sampled and re-analyzed to confirm whether or not they are present at levels that are deleterious to marine life.

Why were the water samples not analyzed for the presence of organics such as oil and grease, and phenols? Since these are likely to be found in a waste disposal area such as this, and could potentially have a negative effect on fish or fish habitat, DFO recommends that samples should be analyzed for these parameters.

The statement is made on the second page of the water quality report cover letter that, "...no long-term impacts are anticipated on the Community's fishing area or water supply.". This statement appears to be based on two water samples taken on one day. Ideally, several samples should be taken over a period of time to detect any variation in those samples and to measure the error in that variation. This would provide a much better indication of the potential for long-term impacts on the aquatic environment.

### Section 3.0 - Regulatory Requirements

The paragraph beneath the heading "The Department of Fisheries and Oceans" is not entirely correct and is therefore misleading. DFO has a responsibility under the Fisheries Act to protect fish and fish habitat from negative impacts. It is a requirement of the Fisheries Act that all substances discharged into water (salt or fresh) frequented by fish, or discharged into a place where it may enter water frequented by fish, be non-deleterious to fish and fish

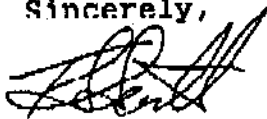
habitat. Under the Fisheries Act, "fish" include all life stages of "fish, shellfish, crustaceans, marine animals and marine plants", while "fish habitat" is defined as those parts of the environment "on which fish depend, directly or indirectly, in order to carry out their life processes".

#### 5.4 - Monitoring

Yearly water quality monitoring of leachate and surface water runoff from the closed landfill is recommended for a period of three years. What water quality parameters will be analyzed? What guidelines will be followed when limiting the water quality parameters? What will happen if any of the water quality parameters is found to exceed the limits set out in those guidelines? Why was a monitoring period of three years chosen?

If you have any questions or comments, please contact me at (819) 979-6274.

Sincerely,



Tim Surette  
Eastern Arctic Area Manager

cc. D. McGowan, A/Habitat Co-ordinator  
C. Churchward, Area Habitat Biologist  
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