Government of Canada / Gouvernement du Canada
Fisheries and Oceans / Pêches et Océans
Eastern Arctic Area Office
Box 358
Iqaluit, NT
X0A 0H0

28 January 1994

Your file / Votre référence

Our file / Notre référence

Major R. Allie
NWSO 6
National Defense HQ
MGen George R. Pearkes Bldg.
Ottawa, Ontario
K1A 0K2

Dear Mj. Allie:

Re: **North Warning System Long Range Radar Site - FOX-M (Hall Beach) - Water Reservoir Repair**

In response to FRONTEC Logistics Corp.'s letter of 23 December 1993, the Department of Fisheries and Oceans (DFO) has reviewed the information submitted with the above noted project and has the following comments/suggestions to offer.

Recognizing the Department of National Defence (DND) as the initiating department for this proposal under the Environmental Assessment and Review Process (EARP) Guidelines Order, DFO's assessment takes into consideration fish and fish habitat related concerns only.

The deposit of deleterious substances into waters frequented by fish, or into a place where it may enter waters frequented by fish, is prohibited under the Fisheries Act. A deleterious substance is defined as, "any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water".

The application of Bentonite to the reservoir is suggested in several of the repair options. Bentonite is a dry, clay material and, as such, can be defined as a deleterious substance. Certain fish are highly sensitive to the effects of silt, both directly and indirectly. Silt can damage sensitive gill surfaces or, in high enough concentrations, can even clog the gills until suffocation and death occurs. Murky water caused by too much silt can delay or block fish migration, confuse homing behaviour, and interfere with feeding if the fish are dependent on sight to capture their prey. There are really no safe levels of silt release. Even small deposits of silt can be dangerous to certain fish, particularly salmonids such as Arctic Char.

Although there are apparently no fish in the reservoir, its close proximity to the ocean means that the potential for negative

impacts on fish and fish habitat still exists if some of the Bentonite sprayed on the surface of the reservoir were to seep through the leaky berms and flow downstream into the ocean where a plume of sedimentation could cause migrating char to avoid the affected area. Depending on the amount of silt that reaches the ocean and the degree of avoidance by the char, this could potentially interfere with local fishing efforts.

DFO has concluded that the potentially adverse environmental effects that may result from the project are mitigable with known technology, in which case the proposal may proceed with the following conditions:

1. In order to prevent the deposit of a deleterious substance into the ocean at a critical time, DFO recommends that the proponent refrain from depositing Bentonite (or any other fine sediment) into the affected reservoir during the period of Arctic Char migration in August and September.

2. DFO shall be notified of any changes in plans or operating conditions associated with this activity which may adversely affect fish or fish habitat.

Please note that none of the foregoing should be taken as authorization of the undertaking in accordance with the FA or any other applicable legislation.

If you have any questions or comments with respect to the above, please contact me at (819) 979-6274.

Sincerely,

C. Churchward

Carol Churchward
Area Habitat Biologist

cc. T. Surette, DFO Area Manager
A. Theriault, INAC District Manager
I. Wawryk/S. Cheng, FRONTEC Logistics Corp.