



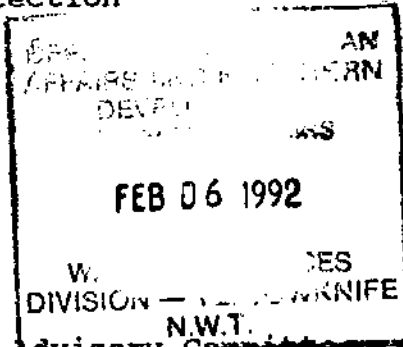
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NWT District Office
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Your file Votre référence

Our file Notre référence
4782-050 and
4782-047

February 6, 1992

Yvette Morin
Secretary, Technical Advisory Committee
Water Resources Division
Box 1500, Yellowknife, NWT, X1A 2R3

0640
Clyde River
1w
Yvette

Dear Yvette;

Re: **REPORTS FOR WASTE DISPOSAL PROJECTS IN BROUGHTON ISLAND AND
CLYDE RIVER**

EP has received the above noted reports. Given the similar nature of these reports the following comments apply equally to both.

Solid Waste Site:

A sump is recommended in the honey bag dump and is to be pumped out as required. Where will this be pumped? We assume that it will be pumped into the lagoon.

The solid waste dump is very briefly described as sloping down away from the access road. The operation of the dump is described as "the garbage will be dumped over a small bank, once a pile forms it should be compacted with a bulldozer and a layer of natural soil placed over the top to cap the garbage." It seems, based on this description, that the dump is located on declining grade. This is a particularly poor location for a dump as it is susceptible to erosion, excessive leaching, and easy surface water contamination. If scavenging is to be incorporated into the management of the dump then separation of the wastes should also be incorporated. Burning should be at least restricted where people have access to scavenging for health purposes.

Sewage Lagoon:

EP is not questioning the adequacy of a professionally designed frozen core structure for the proposed sewage lagoon. However in the absence of a geothermal investigation of the site, and given the cursory nature of the geotechnical study in general, we are concerned whether the design be fully supported by stamped engineering design drawings or qualified by the limited amount of available site specific information. We also recommend that any operation, maintenance and monitoring requirements be fully

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implemented as suggested by the consultant.

The capacity of one lagoon cell provides only enough storage for 365 days retention for the present population. EP recognises that this is a theoretical volume which should allow for a certain grace period before the facility is operating at capacity. This length of this grace period is undefined and the volumes must be closely monitored. The second half of the lagoon should be planned well in advance of the lagoon meeting its capacity. This is of particular concern with such a facility since any deviation from its proper operation could seriously effect the integrity of the structure, for example: The structural integrity of the frozen core is dependant on maintaining a minimum of two meters of freeboard, it should be made very clear that this freeboard be part of the design and that it be maintained in the operation of the lagoon; There is also the concern that a spring discharge (to increase capacity) would expose the base of the lagoon to summer temperatures and lower the permafrost level which would introduce additional seepage into the lagoon and possibly effect the integrity of the berm.

The construction of a 365 day storage type lagoon with an autumn discharge would certainly be an improvement over the existing situation. EP would, however, like to state that it is a requirement of the Fisheries Act, and therefore the recommendation of Environmental Protection, that all effluent discharged into water frequented by fish or discharged into a place where they may enter water frequented by fish, be non-deleterious, commonly defined as non-toxic.

Compliance with this Fisheries Act requirement is based on the acute lethality of the effluent measured at end-of-pipe. An effluent is acutely lethal if the undiluted (100%) effluent kills 50% or more of the fish or daphnids in their respective tests.

It is not believed that such a facility is capable of achieving compliance with this requirement. Long term plans should include a treatment system which has such a capability.

Yours sincerely;



Henry Westermann P.Eng.
Environmental Engineer, EP

cc E. Collins EP
 A. D'Entremont EP