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MEMORANDUM **NOTE DE SERVICE**

TO / À: Steve Harbicht
Chief, AMD
EPS
Yellowknife, NWT

FROM / DE: Chief, Environmental Engineering
Environmental Protection Service
NWT District Office
Yellowknife, NWT

SECURITY - CLASSIFICATION - DE SÉCURITÉ	
OUR FILE — N / RÉFÉRENCE	4782-046
YOUR FILE — V / RÉFÉRENCE	
DATE	November 4, 1993

SUBJECT / OBJET: **GRISE FIORD - SEWAGE DISPOSAL IMPROVEMENTS**

I have reviewed the above draft report by UMA Engineering and offer the following comments.

The overall concept of 12-month retention followed by a land/wetland polishing system should achieve compliance with our requirements under the Fisheries Act.

On Page 7, the report states that the receiving environment could be classified "Open Coastline" as described in the Water Board Guidelines. This contradicts statements made on the third page of Appendix C, where the report recognizes a "lack of significant water movement in the bay". If the latter statement is true, the Water Board Guideline for "Bay or Fjord" should be used.

On the third page of Appendix C, the report correctly states that the end-of-pipe for effluent could be considered to be where it enters the ocean. Before the land/wetland portion can be considered a part of the "treatment system", information must be provided on:

- detention time in the land/wetland portion;
- water balance in the land/wetland portion;
- treatment efficiency of the land/wetland portion;
- effluent quality from the land/wetland portion; and
- any other information required to demonstrate that the land/wetland portion has been engineered to provide the desired level of treatment.

Since this is unproven technology for the climate at Grise Fiord, it is imperative that extensive monitoring be done after construction to determine if the treatment system is achieving its goals. Also, a contingency plan should outline actions to be taken if the treatment system does not operate as well as anticipated.

The concept of releasing effluent by seepage through the berms has caused a little concern. It would be safer to install a liner in all of the berms, and control the discharge through the pipe and valve system. The worst case would be if the lagoon drained too quickly and allowed untreated effluent to drain throughout the summer. If this occurred, it would be difficult or impossible to install a liner after the fact. Clearly, if the geotextile/seepage

option is used, effluent release will have to be monitored, and either construction or operational procedures changed if the lagoon does not drain as anticipated.

On a positive note, we are encouraged to see an attempt to assess the environmental impacts of the proposal. Although it is not a rigorous assessment, I believe that this is a first for a Municipal Licence.

I trust that these comments will be useful. If you have any questions or would like additional information, please contact me.

Ed Collins, P. Eng.

cc. M. Gilbertson
L. Johnston