

*wpc*  
*water*

AN ORDER OF THE CLEAN ENVIRONMENT COMMISSION

UNDER THE CLEAN ENVIRONMENT ACT

RE: THE CLEAN ENVIRONMENT COMMISSION and HUDSON BAY MINING AND SMELTING CO., LIMITED, Applicant,

WHEREAS pursuant to the provisions of the Clean Environment Act, Hudson Bay Mining and Smelting Co., Limited submitted a proposal to the Department of Mines, Resources and Environmental Management in connection with the operation of an ore concentrator discharging metallurgical tailings and liquid mine effluent to Anderson Lake, with eventual drainage into Anderson Bay on Wekusko Lake; said proposed ore concentrator to be located adjacent to the present Stall Lake Mine, near the Town of Snow Lake in the Local Government District of Snow Lake;

AND WHEREAS in the absence of limits being prescribed by a Regulation under the said Act, the said proposal was referred to The Clean Environment Commission for the prescribing of limits;

AND WHEREAS the Commission received notices of representation from persons who are, or who are likely to be affected by an Order of the Commission prescribing limits in connection with the said operation;

AND WHEREAS the Commission held a public hearing on the 19th and 20th days of September, 1977, in the Community Hall in the Town of Snow Lake, Manitoba;

AND WHEREAS the Commission is aware there exists a Government of Canada regulation which prescribes limits applicable to the discharge of tailings and effluent from the said operation;

AND WHEREAS the Commission deemed it appropriate, for the protection of the environment, to prescribe additional limits on the said tailings and effluent;

AND WHEREAS the Commission considered the application on the 25th day of October, 1977, and on the 14th day of November, 1977;

IT IS HEREBY ORDERED THAT

1. The Applicant shall ensure that the quality of the effluent, as measured at the discharge point at the outlet from Anderson Lake, is such that:
  - (a) the concentrations of the following contaminants are not in excess of the following limits:

*assigned to wpc*  
*780104.*  
*CB0/ci*

## 1. (a) Cont'd . . . .

	<u>MAXIMUM MONTHLY MEAN CONCENTRATION*</u>	<u>MAXIMUM CONCENTRATION IN A GRAB SAMPLE</u>
Arsenic	0.5 milligrams per litre	0.75 milligrams per litre
Copper	0.3 milligrams per litre	0.45 milligrams per litre
Lead	0.2 milligrams per litre	0.3 milligrams per litre
Nickel	0.5 milligrams per litre	0.75 milligrams per litre
Zinc	0.5 milligrams per litre	0.75 milligrams per litre
Total Suspended Solids	25 milligrams per litre	37.5 milligrams per litre

(b) the concentrations of the following contaminants are not in excess of the following additional limits:

	<u>MAXIMUM MONTHLY MEAN CONCENTRATIONS*</u>	<u>MAXIMUM CONCENTRATION IN A GRAB SAMPLE</u>
Cadmium	0.2 milligrams per litre	0.3 milligrams per litre
Cyanide (free)	0.1 milligrams per litre	0.15 milligrams per litre
Mercury	0.0002 milligrams per litre	0.0003 milligrams per litre
Fecal Coliform (as indicated by the MPN Index)		20 per 100 millilitres of sample

(c) the monthly mean pH\*\*, is within the range of 6.0 to 10.0.

2. The Applicant shall ensure that grab samples of undiluted effluent from the said operation at the discharge point of the outlet from Anderson Lake are collected and analyzed:

(a) for those contaminants listed in Clause 1(a) of this Order, weekly during periods of discharge of the said effluent;

(b) for those contaminants listed in Clause 1(b) of this Order, upon request from the Environmental Management Division of the Department of Mines, Resources and Environmental Management;

## 2. Cont'd . . .

said analysis to be carried out in a manner satisfactory to the said Division.

3. Pursuant to Clause 2 of this Order, the Applicant shall ensure that facilities for the collecting and analyzing of effluent samples, are installed and maintained in a manner satisfactory to the said Division.
4. The Applicant shall ensure that, for the purpose of producing samples of the effluent from the discharge point of the Anderson Lake outlet, the said point of discharge is adequately accessible by vehicle throughout the year.
5. The Applicant shall ensure that the said Division is notified two weeks in advance of each period of discharge from Anderson Lake to Anderson Creek.
6. The Applicant shall ensure that the total volume of effluent discharged during each discharge period at the outlet from Anderson Lake is measured on a monthly basis during open water conditions and that the structure is designed to facilitate flow rate determinations during winter conditions.
7. The Applicant shall ensure that, within 30 days after the end of each month during which discharge of effluent from the discharge point of the Anderson Lake outlet has occurred, a report is forwarded to the said Division, containing the following information respecting the month in respect of which the report is made:
  - (a) arithmetic mean concentrations\*, in milligrams per litre of all the substances, analyzed pursuant to Clause 1 of this Order, in each undiluted effluent and the mean pH\*\* of each effluent;
  - (b) a list of the concentrations of all substances as determined in the analyses carried out pursuant to Clause 1 of this Order, in all samples used to determine the arithmetic mean concentrations\* referred to in Clause 7 (a) of this Order;

## 7. Cont'd . . .

- (c) the pH of all samples used to determine the mean pH\*\* referred to in Clause 7(a) of this Order;
- (d) the total volume in Imperial gallons of effluent discharged during the month.

## 8. The Applicant shall:

- (a) collect samples of the water in Anderson Bay at a point adjacent to the cottage or residence nearest to the Anderson Creek outfall 30 days before any effluent discharge from Anderson Lake, once every 30 days during such discharge and 30 days after the conclusion of each such discharge, for the purpose of determining whether the effluent from the said operation is affecting the said water; and
- (b) analyze the samples for the following substances:
  - (i) arsenic
  - (ii) cadmium
  - (iii) copper
  - (iv) cyanide
  - (v) lead
  - (vi) mercury
  - (vii) sulphates
  - (viii) total dissolved solids
- (c) report the results of the analyses carried out pursuant to subclause (b) to the said Division within 30 days of the end of the month in which the samples were taken.

## 9. The Applicant shall ensure that:

- (a) there is underwater distribution of tailings during placement so that no tailings/air interface occurs at any time by means of wave action or in seasonal low-water conditions;
- (b) a minimum of 5 feet of water cover is continuously maintained over the entire surface area of the submerged tailings upon termination of the said operation; and

## 9. Cont'd . . .

(c) every three years from the date of start-up of the said operation, the said Division is provided with a contour map of the tailings surface in relation to the minimum lake elevation maintained by the proposed outflow dam structure.

10. The Applicant shall ensure that from the date of start-up of the said operation no discharge of any effluent is directed into the Stall Lake drainage basin with the exception of:

- (a) surface drainage from the mine site due to precipitation;
- (b) fresh water from the said operation, which has not been in contact with the ore or the metal concentrates.

11. The Applicant shall provide the said Division with information of the use of any substance, along with its chemical composition, which the Applicant plans to use in the milling operation for a period in excess of 4 months and the residual of which will enter the wastewater stream.

12. The Applicant shall submit to the said Division, on or before the 1st day of January of each year of operation an overall water balance flow sheet for the mining and milling operations discharging directly or indirectly into Anderson Lake: said water balance sheet to reflect any revised flow rates based on the previous year's flow recorded within the system and to show the calculated percent of total water requirements being recycled, for the purpose of demonstrating whether that amount is being maintained in the range 70% to 80% or better. Should the percentage of total water requirements being recycled fall below 70%, the said water balance submission shall be supported by the technical considerations that necessitated higher freshwater requirements within the system.

13. The Applicant shall ensure that:

- (a) every three years following the start-up date of the said operation, a limnological monitoring program is conducted in accordance with guidelines issued by the said Division;

13. Cont'd . . .

(b) a report on the findings and conclusions of each study referred to in Clause 12(a) of this Order is submitted to the said Division within 6 months of the completion of each monitoring program.

14. The Applicant shall, on or before the 1st day of December, 1980, file with The Clean Environment Commission a preliminary proposal for rehabilitation measures with respect to the Stall Lake and Anderson Lake mine sites and tailings disposal area detailing:


- (a) the eventual orderly removal and disposal of all structures, their contents and all other accumulated material on the site of the said operation;
- (b) the steps to be taken to rehabilitate the said site progressively and at the termination of the operation in line with aesthetic considerations and the preservation and enhancement of the environment;
- (c) the measures proposed for the containment and/or treatment of acidic waters in Anderson Lake should they occur in the post-abandonment period;

said proposal shall be subject to consideration, amendment and approval or otherwise by The Clean Environment Commission as a basis for future planning and eventual action by the Applicant.

Order No. 766

Dated at the City of Winnipeg

this 29th day of December, 1977.

  
 Chairman,  
 The Clean Environment Commission.

C-E-1644

\* "mean concentrations" for the purposes of this Order, will be calculated as arithmetic mean concentrations.

\*\* "mean pH" is calculated as:  $\text{mean pH} = -\log_{10}$

$$\frac{\sum_{x=1}^n 10^{-\text{pH}_x}}{n}$$

where "n" is the number of samples used to determine the mean.