

Environment Act Licence

Manitoba
Environment



Licence No. 1488
Issue Date JULY 8, 1991

In accordance with the Manitoba Environment Act (C.C.S.M. c. E125)

THIS LICENCE IS ISSUED TO:

HUDSON BAY MINING AND SMELTING CO., LIMITED; APPLICANT
STAGE 3 LICENCE

The following limits, terms and conditions shall be complied with by Hudson Bay Mining and Smelting Co., Limited in connection with the operation of a nickel/copper mine and mill complex commonly known as the Namew Lake Mine, located on the east side of Namew Lake, in Manitoba, within Township 60, Range 29 WPM:

1. The Applicant shall not discharge any liquid effluent from this operation towards Namew Lake by any routes other than:
 - (a) through Chocolate Lake; and/or
 - (b) through the mill's reclaim water reservoir under circumstances of an emergency overflow resulting from the accumulation of excess quantities of wastewater, due to extreme conditions of precipitation, which said wastewater cannot otherwise be reclaimed to the mill or diverted to the mine/mill wastewater storage pond.
2. The Applicant shall notify the Director in advance of any imminent emergency overflow from the reclaim water reservoir to Namew Lake, and shall carry out such instructions, if any, as may be issued by the Director.
3. The Applicant shall not discharge or deposit into the environment:
 - (a) raw or untreated sewage; or
 - (b) sewage sludge; or
 - (c) garbage or bulky metallic wastes;except to an authorized waste disposal ground in accordance with regulations issued under the Environment Act.
4. The Applicant shall not burn wastes of any kind at the waste disposal ground developed on site.

5. The Applicant shall direct the water from the underground mine depressurizing program (including any freshwater added for dilution) only into the Chocolate Lake pipeline for disposal into Chocolate Lake, unless otherwise approved by the Director.
6. The Applicant shall not discharge water from the underground mine depressurizing program (including any freshwater added for dilution) to the Chocolate Lake pipeline:
 - a) at a rate exceeding 300 litres per second; nor
 - b) at a concentration exceeding 2000 milligrams per litre of total dissolved solids.
7. The Applicant shall measure the volume of the water from the underground mine depressurizing program (including any freshwater added for dilution) being discharged each week, and sample and analyze the said water weekly for the total dissolved solids content at a sampling point preceding any mixing with any other wastewater in the Chocolate Lake pipeline.
8. The Applicant shall not direct any waters other than undiluted mill process wastewater and undiluted underground mine wastewater into the wastewater storage pond, exclusive of the natural surface runoff into the said pond and necessary diversions from the reclaim water reservoir.
9. The Applicant shall not discharge effluent from the wastewater storage pond into the Chocolate Lake pipeline if:
 - (a) the concentration of any of the following pollutants in the undiluted effluent is in excess of the corresponding maximum allowable concentration shown for those categories listed under Columns I, II and III of the following table:

<u>Pollutant</u>	<u>Column I</u>		<u>Column II</u>		<u>Column III</u>	
	Maximum Monthly Arithmetic Mean Concentration		Maximum Concentration In a Composite Sample		Maximum Concentration In a Grab Sample	
Total Arsenic	0.29	mg/l	0.43	mg/l	0.58	mg/l
Total Copper	0.13	mg/l	0.19	mg/l	0.26	mg/l
Total Lead	0.1	mg/l	0.15	mg/l	0.2	mg/l
Total Nickel	0.5	mg/l	0.75	mg/l	1.0	mg/l
Total Zinc	0.2	mg/l	0.3	mg/l	0.4	mg/l
Total Cadmium	0.01	mg/l	0.015	mg/l	0.02	mg/l
Total Iron	1.4	mg/l	2.1	mg/l	2.8	mg/l
Total Suspended Matter	25.0	mg/l	37.5	mg/l	50.0	mg/l

(b) the pH of the effluent is below the minimum allowable values shown for those categories listed under Columns I, II and III of the following table:

<u>Column I</u>	<u>Column II</u>	<u>Column III</u>
Minimum Monthly <u>Arithmetic Mean pH</u>	Minimum pH in a <u>Composite Sample</u>	Minimum pH in a <u>Grab Sample</u>
6.0	5.5	5.0

10. The Applicant shall, subject to Clause 14, sample and analyze the effluent from the wastewater storage pond prior to discharge into the Chocolate Lake pipeline:

(a) for the following pollutants at no less a frequency than is specified in the table below, where the applicability of Columns I, II, III and IV for each pollutant listed shall be determined on the basis of the arithmetic mean concentration of that pollutant in the samples of effluent collected and reported in those preceding six months during which effluent discharge occurred:

<u>Pollutant</u>	<u>Column I</u>	<u>Column II</u>	<u>Column III</u>	<u>Column IV</u>
	At Least Weekly If Concentration Is Equal To Or <u>Greater Than</u>	At Least Every Two Weeks If Concentration Is Equal To Or <u>Greater Than</u>	At Least Monthly If Concentration Is Equal To Or <u>Greater Than</u>	At Least Every Six Months If Concentration <u>Is Less Than</u>
Total Arsenic	0.29 mg/l	0.14 mg/l	0.07 mg/l	0.07 mg/l
Total Copper	0.13 mg/l	0.06 mg/l	0.03 mg/l	0.03 mg/l
Total Lead	0.1 mg/l	0.05 mg/l	0.02 mg/l	0.02 mg/l
Total Nickel	0.5 mg/l	0.2 mg/l	0.10 mg/l	0.10 mg/l
Total Zinc	0.2 mg/l	0.1 mg/l	0.05 mg/l	0.05 mg/l
Total Cadmium	0.01 mg/l	0.005 mg/l	0.002 mg/l	0.002 mg/l
Total Iron	1.4 mg/l	0.70 mg/l	0.35 mg/l	0.35 mg/l
Total Suspended Matter	25.0 mg/l	20.0 mg/l	15.0 mg/l	15.0 mg/l

(b) for pH at no less a frequency than as is specified in the following criteria:

- (i) once a week where the pH of the effluent was less than 5.0 at any time in those preceding six months during which effluent discharge occurred;
- (ii) once every two weeks, where the pH of the effluent was between 5.0 and 5.5 at any time in those preceding six months during which effluent discharge occurred;

(iii) once a month if (i) and (ii) do not apply.

11. The Applicant shall recycle wastewater from the reclaim water reservoir to the mill to the extent that, in each month, the quantity recycled makes up at least 80% of the mill's process water requirements in that same month, as determined by a methodology satisfactory to the Director.
12. The Applicant shall determine the total monthly volume (cubic metres) of:
 - (a) freshwater directed to the mill as process water; and
 - (b) wastewater recycled to the mill as process water from the reclaim water reservoir; and
 - (c) the mill's process water requirements in that month; and
 - (d) wastewater, if any, diverted from the reclaim water reservoir to the wastewater storage pond; and
 - (e) effluent discharged from the wastewater storage pond into the Chocolate Lake pipeline; and
 - (f) total combined effluent discharged from the Chocolate Lake pipeline into Chocolate Lake;by suitable flow rate measurement frequencies and techniques as approved by the Director.
13. The Applicant shall submit to the Director the analysis and measurement data determined in accordance with Clauses 7, 10, and 12, in a form acceptable to the Director, not later than 30 days following the end of the month in which the samples and measurements were taken.
14. The Applicant shall sample and analyze any wastewater streams at such a location, and in such a manner, and for such pollutants and characteristics, and at such frequency and for such duration of time as may otherwise be specified in writing by the Director.
15. The Applicant shall, at the request of the Director, from time to time, investigate specific areas of concern regarding any aspects of the solids and liquid waste handling, containment, treatment, recycling and disposal systems of the operation, and provide the Director with such engineering studies, drawings, specifications, analyses of wastewater streams, flow rates and such other information as is so requested.

16. The Applicant shall continue to maintain Chocolate Lake as a stocked rainbow trout fishery in collaboration with the Department of Natural Resources, and in accordance with the development process identified in Appendix 'C' attached to this Licence, until or unless the Department of Natural Resources assumes all fishery management responsibilities for Chocolate Lake.
17. The Applicant shall co-operate fully with the Liaison Committee assembled pursuant to the recommendation of the Clean Environment Commission, so as to assist the Liaison Committee in fulfilling its mandate as specified by the Clean Environment Commission in its "Report on Hearings" to the Minister dated May 23, 1991.
18. Respecting the eventual closure and decommissioning of the operation, the Applicant shall ensure that:
 - a) in the event of an imminent cessation of the said operation, a Final Rehabilitation Plan which reflects the input and consideration of the Liaison Committee (to replace the Preliminary Rehabilitation Plan presented to the Clean Environment Commission on February 25, 1991) is filed with the Director for the consideration, possible amendment and approval, or otherwise, by the Director; and that
 - c) upon the termination of the said operation, the approved Final Rehabilitation Plan is carried out within such time frame as specified by the Director, and to the satisfaction of the Director.
19. Stage 2 Licence No. 1312 is herewith rescinded.
20. In this Licence:
 - (a) "monthly arithmetic mean" means for each pollutant or characteristic, the average of all values determined from the analysis of all composite and grab samples collected and reported during that month with the exception that, if the Applicant collects only one composite or grab sample during a single month, the single set of analytical results shall be construed to be representative of the effluent quality for that month and hence shall be treated as the monthly arithmetic mean;
 - (b) "composite sample" means a quantity of effluent consisting of a minimum of three equal volumes of effluent collected at approximately equal time intervals over a sampling period of not less than 7 hours and not more than 24 hours, or consisting of effluent collected continuously at an equal rate over a sampling period of not less than 7 hours and not more than 24 hours.
 - (c) "mill's process water requirements" for any month means the product of the mill/concentrator rated process water requirements per tonne of ore processed

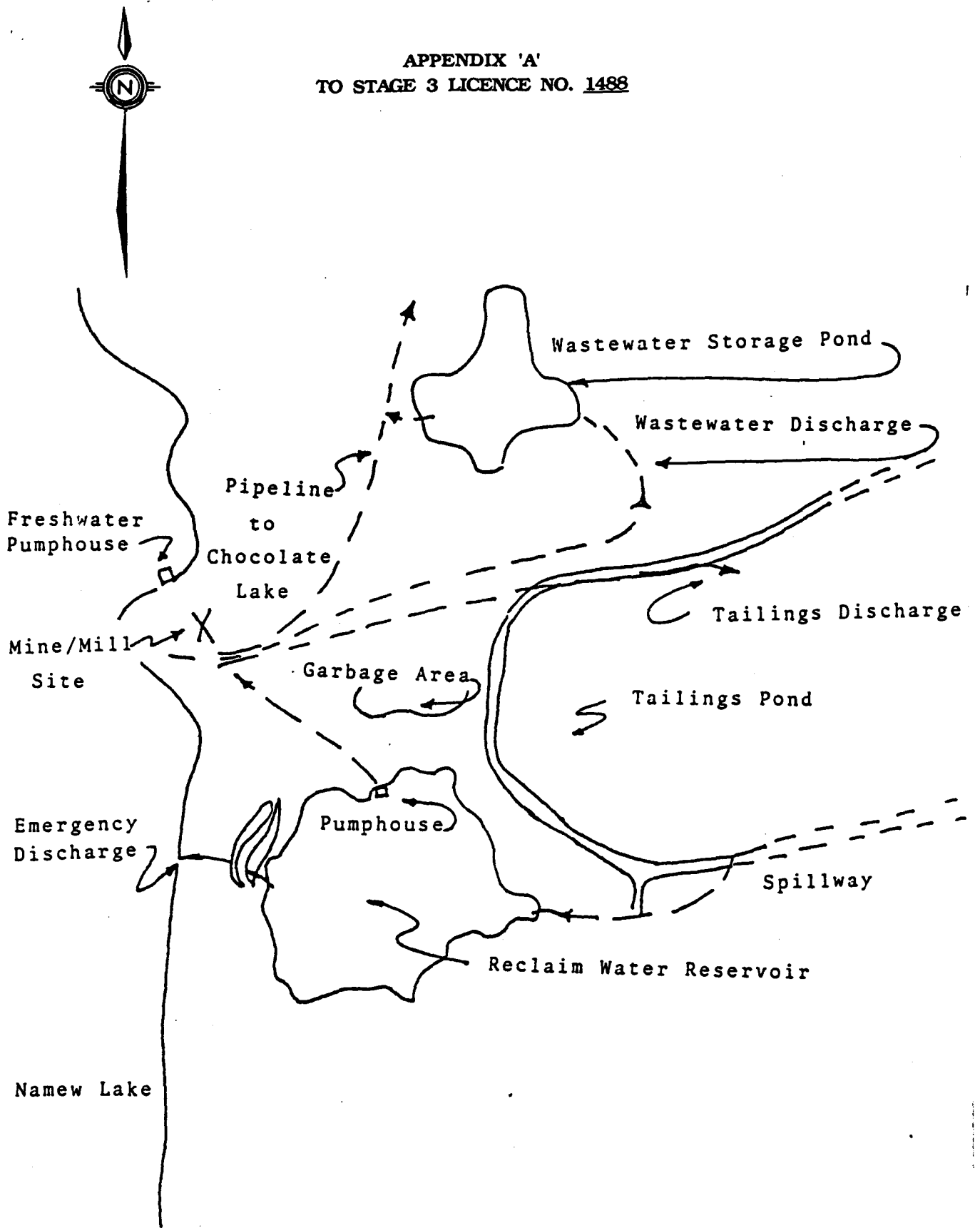
through the mill times the total tonnes of ore reported processed through the mill during that month.



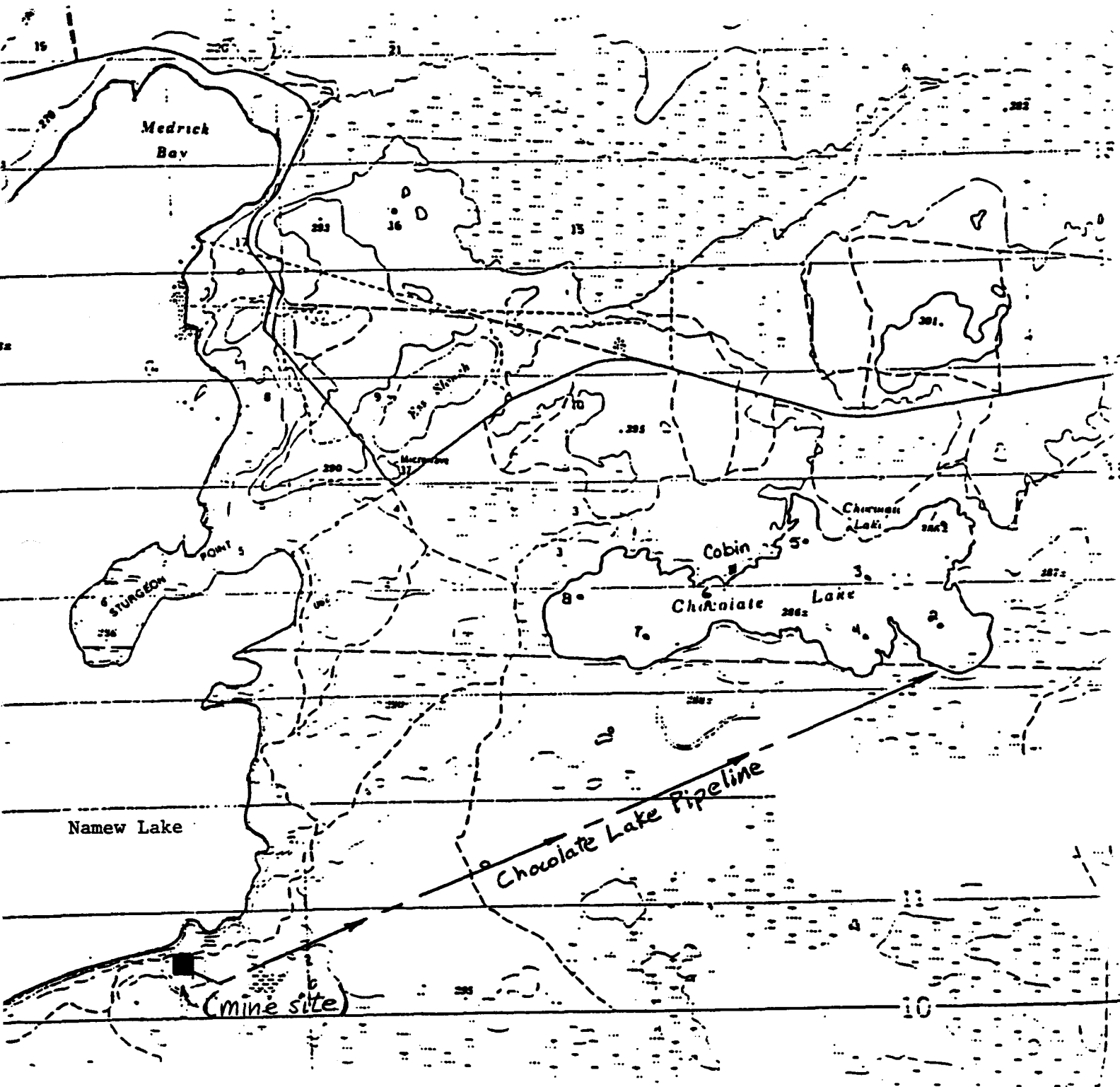
Larry Strachan, P. Eng.
Director
Environment Act

File: 2728.20

APPENDIX 'A'
TO STAGE 3 LICENCE NO. 1488



APPENDIX 'B'
TO STAGE 3 LICENCE NO. 1488



APPENDIX 'C'
TO STAGE 3 LICENCE NO. 1488

PROCESS FOR THE DEVELOPMENT OF THE CHOCOLATE LAKE RAINBOW TROUT FISHERY
BY H.B.M. & S. AND DEPARTMENT OF NATURAL RESOURCES

AGENCY ROLES

The project will be developed and maintained through joint consultation and co-operation between H.B.M. & S. and Natural Resources - Fisheries Branch.

H.B.M. & S. are to play a lead role in the development and maintenance of the fishery during the operational life of the Namew Lake mine/mill operation relative to capital works, labor, material and costs, while Fisheries Branch will play a lead role in the management of the fishery.

Due to the experimental nature of this project, alterations to the development process may occur as required and mutually agreed upon between H.B.M. & S. and Natural Resources - Fisheries Branch.

RECLAMATION

H.B.M. & S. Rotenone will be ordered and is expected to arrive by the end of September 1989. Application will be by boom-equipped helicopter. Hand spraying along the shoreline will be conducted if needed; back-packs can be obtained through the D.N.R. Flow in and out of Chocolate Lake will be stopped during the period of Rotenone application. In the event of accidental release of tainted Chocolate Lake water, potassium permanganate (a Rotenone antidote) will be available.

Fisheries Fisheries will investigate the marketability of the existing fish stocks in Chocolate Lake.

H.B.M. & S. Only major floats of dead fish will be collected. Relative numbers and species diversification will be recorded and reported to Fisheries. Collected fish must be buried.

H.B.M. & S. Access to the lake will be constructed in September 1989, as will the west control dam and structure.

H.B.M. & S./Fisheries All permits for Rotenone application will be obtained by H.B.M. & S. Fisheries will confirm the need for permits.

STOCKING

Fisheries/H.B.M. & S. A bioassay of the lake will be conducted prior to stocking. Bioassay stock and cages will be provided by Fisheries.

H.B.M. & S./Fisheries 208,000 fingerlings have been ordered for spring 1990. Stock will be dispersed throughout the entire lake. Monitoring of bird predation on stock will take place. Subsequent annual stockings will depend on monitoring results. Ken Danielson will be contacted to trap mink and otter in order to reduce predation.

MONITORING

H.B.M. & S. Annual netting will be conducted to determine:

- age structure
- abundance
- metal levels in flesh
- stocking requirements

All netting should be done at the same time of year, in the same locations and with the same mesh size. Limnology studies will be conducted both in winter and summer to ensure adequate water quality to support the fish stocks. Lake levels and ice conditions will also be monitored. All information will be shared with Fisheries.

CONTROL STRUCTURE

H.B.M. & S. A water rights licence has been applied for. Lake levels will be maintained at historic levels. A level 5 - 6 feet above present level could cause a discharge to Rocky Lake; however, a level 1 - 1.5 feet above present level will lead to controlled overflow of the west dam on Chocolate Lake. A percolating weir will be constructed at the west end of Chocolate Lake to maintain lake levels while prohibiting the migration of fish from Chocolate Lake. An emergency spillway will be constructed on the dam and the possibility of a culvert with a screwgate will be investigated.

LAKE MANAGEMENT

Fisheries Fisheries Branch will consider closing Chocolate Lake for one year if necessary, to allow fish stocks to acclimatize following stocking; however it is thought angler interference in this process will be self-regulating due to the size of fish (growth rate) during the first year.

H.B.M. & S./Fisheries The fishery will be managed in the same manner as Barbe Lake. This will be reviewed annually with Fisheries. If any changes to fishery regulations are to be made, they must be submitted by the spring in order to be added to the next year's regulations.

ACCESS

H.B.M. & S. A boat launch, a parking area and a fish cleaning facility will be provided. Plans will be reviewed with Fisheries at a later date. Hudbay will provide site maintenance, possibly with assistance from the Egg Lake rehab crew.

H.B.M. & S. Due to thin ice at the discharge area, signs will be posted at the access points, dyke, and around the discharge area. A signed gate will be constructed on the access road.