

Environment Act Licence Loi sur l'environnement Licence

Manitoba
Environment
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Manitoba



Licence No./Licence n° 1878 S3 RR

Issue Date/Date de délivrance October 12, 1995

Revised: June 21, 1996

Revised: November 2, 1999

IN ACCORDANCE WITH THE MANITOBA ENVIRONMENT ACT (C.C.S.M. c. E125)
THIS STAGE 3 LICENCE IS ISSUED PURSUANT TO SECTIONS 11(1) AND 13(1) TO:

TVX GOLD INC. and HIGH RIVER GOLD MINES LTD; "the Licencees"

to complete development activities and set into operation a gold mining, milling and refining Development in the Town of Snow Lake, identified as the New Britannia Mine and associated with the nearby No. 3 Zone orebody and the Birch Lake Tailings Disposal Facility, in accordance with the Proposal filed under The Environment Act on March 22, 1995, as well as the four supporting documents bearing the Reference No.'s D2206/2 to D2206/5 which accompanied the Proposal, subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"accredited laboratory" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the Canadian Standard Can/CSA-Z753, extension of the international standard ISO 9000, Guide 25, or otherwise approved by the Director;

"affected area" means a geographical area, excluding the property of the Development;

"AP" means the maximum acid-generation potential, expressed as tonnes of CaCO_3 per 1000 tonnes of a material tested, determined in accordance with a static Acid-Base Accounting method satisfactory to the Director;

"approved" means approved by the Director in writing;

"arithmetic mean" means the average value of the concentrations in composite or grab samples collected over the time periods specified in this Licence;

"composite sample" means a quantity of undiluted 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 consecutive hours, or consisting of a quantity of undiluted effluent collected continually at an equal rate, or at a rate proportional to flow, over a sampling period of not less than 7 consecutive hours and not more than 24 consecutive hours;

“contaminated soil” means soil which contains contaminant concentrations in excess of the applicable remediation criteria cited in the CCME's “Recommended Canadian Soil Quality Guidelines” report ISBN 1-895-925-92-4 March 1997, and in the CCME's “Interim Canadian Environmental Quality Criteria for Contaminated Sites” report CCME EPC-CS34 September 1991, or any future amendment thereof;

“Director” means an employee of the department appointed as such by the minister;

“effluent” means mine water released from the Development into the environment;

“extractable” means whereby the liquid sample is acidified with 5 millilitres of 1:1 nitric acid per litre of sample at the time of collection, and shaken well before analysis;

“final discharge point #1” means any point along the two primary discharge pipes on the downstream face of the “Birch Lake Outlet Embankment shown in Appendix ‘B’ attached to this Licence, unless otherwise re-designated in writing by the Director;

“final discharge point #2” means the point of overflow or release from a surface settling pond at the No. 3 Zone mine site, unless otherwise re-designated in writing by the Director;

“fugitive emissions” means particulate matter escaping from unconfined or non-ducted sources into the atmosphere;

“grab sample” means a quantity of undiluted effluent collected at any given time;

“mg/L” means milligrams per litre;

“mine” includes the mine access and underground workings, mill, offices, mechanics shop, hoist room, dry facilities, waste rock and ore stockpiles, tailings disposal facility and all other ancillary buildings and facilities associated with the Development;

“mine site” means the whole operational, disturbed or impacted surface area of land and water located within the boundaries of the surface rights acquired by the Licencees for the development and operation of the Development;

“mine water” means water pumped to the surface from underground mine workings, or polluted liquids discharged from a mill or any other building or facility associated with the mine, or leachate from ore and waste rock stockpiles, or polluted surface runoff, or any combination thereof;

“monthly arithmetic mean” means the arithmetic mean as determined for each specified pollutant or characteristic from the analysis of all composite and grab samples collected and reported during that month in which the release of liquid effluent occurred, with the exception that if the Licencees collect only one composite or grab sample during a single month, then 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;

“mothballed” means placed into a state of non use, or temporarily closed, while at the same time maintained in a state of readiness for potential re-use or re-opening;

“net neutralizing potential” means the arithmetic difference between NP and AP;

“noise nuisance” means a continuous or repeated unwanted sound, in an affected area, which is troublesome, annoying or disagreeable to a person:

- (a) residing in an affected area;
- (b) working in an affected area; or
- (c) present at a location in an affected area which is normally open to the members of the public;

if the unwanted sound

- (d) is the subject of at least 5 written complaints, received by the Director within a 90-day period and in a form satisfactory to the Director, from 5 different persons falling within clauses (a), (b) or (c), who do not live in the same household; or
- (e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses (a), (b) or (c), and the Director is of the opinion that if the unwanted sound had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90-day period from 5 different persons who do not live in the same household;

“NP” means the maximum neutralizing potential, expressed as tonnes of CaCO_3 per 1000 tonnes of a material tested, determined in accordance with a static Acid-Base Accounting method satisfactory to the Director;

“NPR” means the neutralizing potential ratio as determined from the ratio of NP/AP;

“opacity” means the degree to which visible emissions reduce the transmission of light and obscure the view of an object in the background;

“ore” means mineralized rock containing sufficient mineral value to, and for the purposes of, the Development;

“particulate matter” means any finely divided liquid or solid matter other than water droplets;

“potentially acid-generating” means having the potential or uncertain ability to generate acid as indicated by a NPR of 4 or less, until or unless an appropriate alternate NPR cut-off value is determined, to the satisfaction of the Director, through detailed characterizations, evaluations and interpretations, or through kinetic testing, carried out on representative test material by qualified individuals;

“sewage” means sewage as defined in Manitoba Regulation 95/88R respecting private sewage disposal systems and privies, or any future amendment thereto;

“Standard Methods for the Examination of Water and Wastewater” means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Pollution Control Federation;

“undiluted” means free of extraneous sources of water which could feasibly be prevented from mixing with effluent streams prior to their discharge at their designated final discharge point(s), or not having water added for the purposes of meeting the limits of this Licence;

“visible emissions” means any air-borne particulate matter which obscures visibility; and

“WAD” means weak acid dissociable.

GENERAL SPECIFICATIONS

This Section of the Licence contains requirements intended to provide guidance to the Licencees in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. In addition to any of the limits, terms and conditions specified in this Licence, the Licencees shall, upon the request of the Director:
 - (a) sample, monitor, analyze and/or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for such duration and at such frequencies as may be specified;
 - (b) determine the environmental impact associated with the release of any pollutant(s) from the Development; or
 - (c) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rate measurements and such other information as may from time to time be requested.
2. The Licencees shall, unless otherwise specified in this Licence:
 - (a) carry out all preservations and analyses of liquid samples in accordance with the methods prescribed in the Standard Methods for the Examination of Water and Wastewater or in accordance with equivalent preservation and analytical methodologies approved by the Director; and

- (b) ensure that all analytical determinations are undertaken by an accredited laboratory.
- 3. The Licencees shall report all the information requested through the provisions of this Licence in a manner and form acceptable to the Director.
- 4. The Licencees shall:
 - (a) comply with all the requirements of Manitoba Regulation 97/88R respecting the storage and handling of gasoline and associated products, and ensure that all petroleum product storage tanks are set back at least 100 metres from any waterway or water body; and
 - (b) comply with all the provisions and requirements set out in the Dangerous Goods Handling and Transportation Act, and regulations issued thereunder, respecting the handling, transport, storage and disposal of any dangerous goods brought onto or generated at the mine site.
- 5. The Licencees shall restrict development and operational activities to only such lands, and with respect to such facilities, to which the Licencees possess the mineral rights, surface rights or complete ownership, or possess a signed agreement with another person or legal entity respecting the use of any land to which that person or legal entity possesses the mineral rights, surface rights or complete ownership, wherein the said agreement clearly identifies the party which accepts full responsibility for any environmental liabilities incurred by the activities of the Licencees, and then only in compliance with any work permits and timber cutting permits as may be required by the Natural Resources Branch of Manitoba Conservation.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Wastewaters

- 6. The Licencees shall direct all sewage generated within the mine site encompassed by the Development only to the Town of Snow Lake sewage treatment facility, and shall comply with Manitoba Regulation 95/88R, or any future amendment thereto, respecting private sewage disposal systems and privies in regards to any sewage which is temporarily collected in holding tanks.
- 7. The Licencees shall direct:
 - (a) all the mine waters from the underground workings at the No.3 Zone mine site into the on-site surface settling pond;
 - (b) all the mine waters from the New Britannia mine and mill only into the "Birch Lake Tailings Disposal Facility", except under emergency shutdown events of the "Tailings Delivery Pipeline" whereupon such mine waters may be drained from the Tailings Delivery Pipeline for impoundment in the "Tailings Line Drain Basin" constructed within the "Former Tailings Area", as shown in Appendix 'A' attached to this Licence; and

- (c) all surface runoff and leachate from any temporary and permanent ore stockpile, and from any waste rock stockpile to their respective common collection points, and treat these liquids prior to release into the environment if they fail to meet the limits specified in Clause 12 of this Licence.
8. The Licencees shall maximize the recycling of mine water, wherever practical, to minimize the net amount of effluent released into the environment.
9. The Licencees shall not release any effluent into the environment:
 - (a) which may result from any activities at or about the New Britannia mine and mill, except through final discharge point #1;
 - (b) which may seep through the "Birch Lake Outlet Embankment" shown in Appendix 'C' attached to this Licence, if the Director has expressed concern in regards to the quality or quantity of the seepage and has instructed the Licencees to pump the seepage flows back into the supernatant pond on the upstream face of the said embankment;
 - (c) which may seep through the "Canada Creek Cutoff Embankment" shown in Appendix 'C' attached to this Licence, if the Director has expressed concern regarding the quality or quantity of the seepage and has instructed the Licencees to pump the seepage flows back into the supernatant pond on the upstream face of the said embankment; or
 - (d) which may result from any activities at or about the No. 3 Zone, except through final discharge point #2.
10. The Licencees shall manage the rate and duration of release of effluent from the Birch Lake Tailings Disposal Facility in such a manner that any release of effluent via the emergency spillway near the Birch Lake Outlet Embankment occurs only under the conditions of a precipitation event exceeding the design 100 year precipitation event of 83.82 millimetres (3.3 inches) of rainfall over a 24-hour period.
11. The Licencees shall ensure that:
 - (a) the condition of all the embankments used to contain any waste solids and mine water within the Birch Lake Tailings Disposal Facility are inspected and maintained throughout the active years of the Development to the satisfaction of the Director;
 - (b) the condition of all the embankments used to contain any waste solids and mine water within the Birch Lake Tailings Disposal Facility are inspected and maintained throughout the post-closure years of the Development to the satisfaction of the Director, until such time as the Crown agrees to accept this responsibility; and
 - (c) any condition of deteriorated structural integrity or excessive seepage losses, associated with the said embankments and identified as unsatisfactory by the Director, are investigated and corrected in such a manner and within such a time frame as is satisfactory to the Director.

12. The Licencees shall not discharge any effluent from final discharge points #1 or #2 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>Pollutants</u>	<u>Column I</u> Maximum monthly arithmetic mean concentration	<u>Column II</u> Maximum concentration in a composite sample	<u>Column III</u> Maximum concentration in a grab sample
total arsenic	0.5 mg/L	0.75 mg/L	1.0 mg/L
total copper	0.3 mg/L	0.45 mg/L	0.6 mg/L
total lead	0.2 mg/L	0.30 mg/L	0.4 mg/L
total nickel	0.5 mg/L	0.75 mg/L	1.0 mg/L
total zinc	0.5 mg/L	0.75 mg/L	1.0 mg/L
total suspended solids	25.0 mg/L	37.5 mg/L	50.0 mg/L
total cyanide (as CN)	1.0 mg/L	1.5 mg/L	2.0 mg/L
WAD cyanide (as CN)	0.1 mg/L	0.15 mg/L	0.2 mg/L

or,

- (b) the pH of the undiluted effluent is less than 6.0 pH units or greater than 9.5 pH units.
13. The Licencees shall not discharge any effluent from final discharge point #1 if the quality of the undiluted effluent is such that it is acutely lethal to fish, as determined by means of a 96-hour static acute lethality test which results in mortality to more than 50 percent of the test fish exposed to 100 percent effluent, with the test carried out in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Report No. EPS 1/RM/13 July 1990, or any future amendment thereto.

Respecting Air Emissions

14. The Licencees shall limit fugitive emissions from any source associated with the Development such that at any time:
- (a) distinct plume-forming fugitive emissions do not exceed an opacity of 5%; and
- (b) non plume-forming fugitive emissions are not visible;

when measured or viewed in the atmosphere at any point beyond the property boundaries of the Development.

15. The Licencees shall ensure that at any downwind point of impingement of air emissions beyond the property boundaries of the Development, ground level concentrations of the following air pollutant are not in excess of the corresponding limits for any of the listed measurement criteria:

<u>Air Pollutant</u>	<u>Measurement Criteria</u>	<u>Limits</u>
Suspended Particulate Matter	- 24-hour average	120 micrograms per cubic metre
	- annual geometric mean	70 micrograms per cubic metre

as determined from any ambient air sample or samples collected and analyzed in accordance with procedures and methods satisfactory to the Director, and corrected to a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals (760 millimetres of mercury).

16. The Licencees shall not cause or permit a noise nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.
17. The Licencees shall, within 24 hours of having received notification from an Environment Officer of a complaint lodged by the neighbouring public concerning fugitive emissions, respond effectively towards mitigating the fugitive emissions to the satisfaction of the Environment Officer, and submit a report to the Environment Officer within seven days of the notification outlining why the problem developed, how it was mitigated and what would be done to prevent another similar situation from developing.

Respecting Waste Rock, Solid Wastes and Recyclable Wastes

18. The Licencees shall retain all the top soil and clays, which were stripped from the overburden at the No. 3 Zone mine site and stockpiled separate from waste rock stockpiles at that mine site, for future mine site rehabilitation measures at the No. 3 Zone mine site.
19. The Licencees shall:
 - (a) not use, nor release to any person, any contaminated soil, or potentially-acid generating rock or materials, as a construction material; and
 - (b) undertake such remedial work as may be specified by the Director should any of the construction materials used or released by the Licencees in the course of undertaking this Development be determined to have been contaminated soil or potentially acid-generating rock or material.
20. The Licencees shall not deposit solid waste, as defined in Manitoba Regulation 150/91 respecting waste disposal grounds, into the environment except into a waste disposal ground operating under the authority of a permit issued pursuant to Manitoba Regulation 150/91 or any future amendment thereto.
21. The Licencees shall not deposit bulky metallic wastes, used tires, used oil or other fluid lubricants, hydraulic fluids, and any other class of recyclable waste substances as may be specified by the Director, into the environment except:
 - (a) to a facility or infrastructure which accepts such materials for recycling;
 - (b) to a waste disposal ground operating under the authority of an Operating Permit issued pursuant to Manitoba Regulation 150/91, or any future amendment thereof, where these

recyclable substances are kept distinctly segregated from each other and are not buried (unless otherwise specified by the Director) so as to readily facilitate their recycling; or

- (c) by any other method approved by the Director.
22. Respecting the handling and storage of used oil and hydraulic fluids removed from on-site machinery, the Licencees shall ensure that these substances are collected, transported and stored in secure, properly labeled, non-leaking containers until recycled, and that the storage area consists of a base and dikes lined in a fashion satisfactory to the Director so as to prevent the loss of any spilled oil or hydraulic fluids to the subsoil at that storage area.
23. The Licencees shall maintain the recycling program initiated under the terms of Environment Act Licence No. 1878 S2 for those substances identified in, or through the provisions of, Clause 21 of this Licence.

Respecting Monitoring, Record Keeping and Reporting

24. The Licencees shall sample and analyze undiluted effluent, surface runoff, tailings embankment seepage waters, receiving waterways and groundwater at such monitoring stations and at such frequencies as identified in Schedule 'A' and Appendix 'A' attached to this Licence, and for those parameters as specified in Schedule 'B' attached to this Licence, or in accordance with any future revisions made to Schedules 'A' or 'B' by the Director.
25. The Licencees shall once each month for the first six months of effluent release from final discharge point #1, and quarterly thereafter, collect a grab sample of sufficient quantity of undiluted effluent and have each such sample subjected as soon as possible to a 96-hour static acute lethality test carried out in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Report No. EPS 1/RM/13 July 1990, or any future amendment thereto, until or unless the Director is satisfied that the sampling frequency can be reduced or terminated.
26. The Licencees shall during each month determine:
- (a) the total volume of effluent released from final discharge points #1, and #2;
 - (b) the total effluent released via the Emergency Overflow Spillway;
 - (c) the total volume of effluent seepage flows passing through each of the Birch Lake Outlet Embankment and the Canada Creek Cutoff Embankment;
 - (d) the total volume of mine water recycled from the reclaim water decant facility at the Birch Lake Tailings Disposal Facility back to the mill site; and
 - (e) the total volume of surface runoff passing through the culvert at monitoring station SWM 08 into Canada Creek;

using flow rate measurement equipment and/or estimation techniques satisfactory to the Director, with the flow rate determinations expressed in cubic metres.

27. The Licencees shall submit to the Director, in writing and in an electronic format acceptable to the Director, the analyses and flow rate data determined in accordance with Clauses 24, 25, and 26 no later than 30 days following the end of the month in which the samples were taken.
28. The Licencees shall, no later than the first day of March of each calendar year of the first three years of effluent release occurrences from final discharge point #1, compile and submit to the Director a report which summarizes all the water quality and quantity monitoring data collected during each year at the Birch Lake Outlet Embankment, at the Canada Creek Cutoff Embankment, at monitoring station SWM 08 and in the receiving waterways, and which describes the environmental impact on these receiving waterways in relation to the "Manitoba Surface Water Quality Objectives" dated July 15, 1988, or any subsequent revision thereto.
29. The Licencees shall once every three years commencing with the summer of 1997 carry out full limnological studies of Herblet Lake with particular emphasis on the receiving water mixing zone defined for lakes in the Manitoba Surface Water Quality Objectives, in accordance with a monitoring program approved by the Director, and submit to the Director, in writing and with the data also provided in an electronic format acceptable to the Director, the results and interpretation of each such study by no later than the 30th day of June in the year following that in which the studies were carried out.
30. The Licencees shall, commencing with October 1, 1997, and once every two years thereafter, submit to the Director a report regarding the condition of each perimeter embankment constructed at the Birch Lake Tailings Disposal Facility, which said report would address the erosion, settling, stability and seepage conditions at each such embankment based on visual inspections and the readings of the installed instrumentation together with the relevant interpretations performed by a person competent in this field.
31. The Licencees shall:
 - (a) together with each monthly effluent report submitted pursuant to Clause 27 of this Licence, submit to the Director the cumulative tonnage of waste rock which were mined and stockpiled or otherwise used on surface at the mine site, and the cumulative tonnage of mill tailings directed to the Birch Lake Tailings Disposal Facility up to the end of that reporting period;
 - (b) unless otherwise specified by the Director, once every three months extract a representative bulked sample of each of:
 - (i) newly mined waste rock which is stockpiled or otherwise utilized on surface at the mine site; and
 - (ii) newly released mill tailings directed to the Birch Lake Tailings Disposal Facility.
 - (c) analyze each bulked sample obtained pursuant to sub-Clause 31(b) of this Licence for the total sulphur (as S) and sulphide (as S) content, and use static acid-base accounting test methods satisfactory to the Director to determine the acid-generation potential, the neutralizing potential, the net neutralizing potential and the ratio of neutralizing

potential to the acid-generation potential, as carried out and interpreted by qualified individuals, and submit the results of the analyses and the interpretative evaluations to the Director within two months of the collection of the samples; and

- (d) extract such bulked samples of any potentially acid-generating waste rock or tailings as may be specified by the Director, and analyze each bulked sample to address such program objectives, as may be specified by the Director, using kinetic test methods which are acceptable to the Director and which are carried out and interpreted by qualified individuals, and submit the results of each test together with the interpretative evaluations to the Director within two months of the termination of each test.
32. The Licencees shall, by October 12, 1996, submit to the Director a report comparing the chemical and physical characterization of the existing tailings located in the Birch Lake Tailings Disposal Facility against the new tailings being deposited upon the existing tailings, and commenting on the short and long term environmental consequences of any identified differences between the two sets of tailings.
33. The Licencees shall, no later than the first day of March of each year, submit a report to the Director on the achievements made over the preceding calendar year regarding the recycling program being carried out pursuant to Clause 23 of this Licence.

Respecting Spills

34. The Licencees shall continually maintain a comprehensive and current status Emergency Response Plan to the satisfaction of the Director, and shall promptly submit any future revisions to the Emergency Response Plan to the Director.

Respecting Closure, Decommissioning and Rehabilitation

35. The Licencees shall:
- (a) provide the Director with:
 - (i) written notice three months in advance of any imminent permanent closure of this Development; or
 - (ii) provide the Director with an immediate notice of any sudden decision to temporarily close this Development whereby the Development would be placed in a mothballed state for re-opening in the foreseeable future;
 - (b) comply with Manitoba Regulation 67/99, being a regulation issued under The Mines and Minerals Act respecting Closure Plans for mining developments, particularly in regards to addressing environmental issues including, but not necessarily limited to: the decommissioning and rehabilitation of disturbed areas; the containment, control or treatment of pollutants originating from the site of the Development; the decommissioning of access roads and stream crossings; the restoration or replacement of disturbed fish habitats; and the scope, frequency and strategy of post-closure environmental monitoring activities; and
 - (c) in the course of progressive rehabilitation, as well as upon the permanent or temporary closure of this Development, implement the environmentally related aspects of the Closure Plan to the satisfaction of the Director.

REVIEW AND REVOCATION

- A. This revised Stage 3 Environment Act Licence replaces Environment Act Licences No. 1878 S3 and No. 1878 S3 R which are hereby rescinded.
- B. If, in the opinion of the Director, the Licencees have exceeded or are exceeding or have or are failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.
- C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.



Larry Strachan, P. Eng.
Director
Environment Act

File: 2834.2

SCHEDULE 'A'

Area	Source / Location	Sampling Stations (see Appendix 'A')	Sampling Frequency	Determination or Analyses
New Britannia Mine & Mill Site	Groundwater Monitoring Wells	MW 16	1x per year	See Schedule 'B', Column B.3
	"	MW 17	1x per year	See Schedule 'B', Column B.3
	"	MW 18	1x per year	See Schedule 'B', Column B.3
	"	MW 19	3x per year (1)	See Schedule 'B', Column B.3
	"	MW 20	1x per year	See Schedule 'B', Column B.3
	"	MW 23	3x per year	See Schedule 'B', Column B.3
No. 3 Zone Mine Site	Surface Mine Water Settling Pond	Final Discharge Point #2	Weekly	See Schedule 'B', Column B.1
	Groundwater Monitoring Wells	MW 24	3x per year	See Schedule 'B', Column B.3
	"	MW25	1x per year	See Schedule 'B', Column B.3
	Runoff into Canada Creek	SWM 08	Monthly	See Schedule 'B', Column B.1
Tailing Disposal Facility	Surface Water Collection Pond	SWM 01	3x per year	See Schedule 'B', Column B.2
	Birch Lake Outlet Embankment	SWM 04 (Pond Supernatant)	Monthly	See Schedule 'B', Column B.1
	"	SWM 02 (Seepage Effluent)	Monthly	See Schedule 'B', Column B.1
	"	SWM 03 (Final Discharge Point #1)	Weekly	See Schedule 'B', Column B.1
	Canada Creek Cutoff Embankment	SWM 07 (Seepage Effluent)	Monthly	See Schedule 'B', Column B.1
	Perimeter Groundwater Monitoring Wells	MW 1B	3x per year	See Schedule 'B', Column B.3
	"	MW 02	3x per year	See Schedule 'B', Column B.3
	"	MW 04	3x per year	See Schedule 'B', Column B.3
	"	MW 05	3x per year	See Schedule 'B', Column B.3
	"	MW 10	3x per year	See Schedule 'B', Column B.3
	"	MW 11	1x per year	See Schedule 'B', Column B.3
	"	MW 12	3x per year	See Schedule 'B', Column B.3
	"	MW 15	1x per year	See Schedule 'B', Column B.3
Receiving Waters	Birch Creek	MW 27	3x per year (2)	See Schedule 'B', Column B.3
	Herblet Lake	SWM 05	Quarterly	See Schedule 'B', Column B.2
	Snow Lake	SWM 06 SWM 09	Quarterly Quarterly	See Schedule 'B', Column B.2 See Schedule 'B', Column B.2

Notes: (1) If the 1999 monitoring data shows that arsenic levels have remained low and stable, a sampling frequency of 1x per year may be implemented as of 2000.
 (2) Subject to review pending the evaluation of future data.

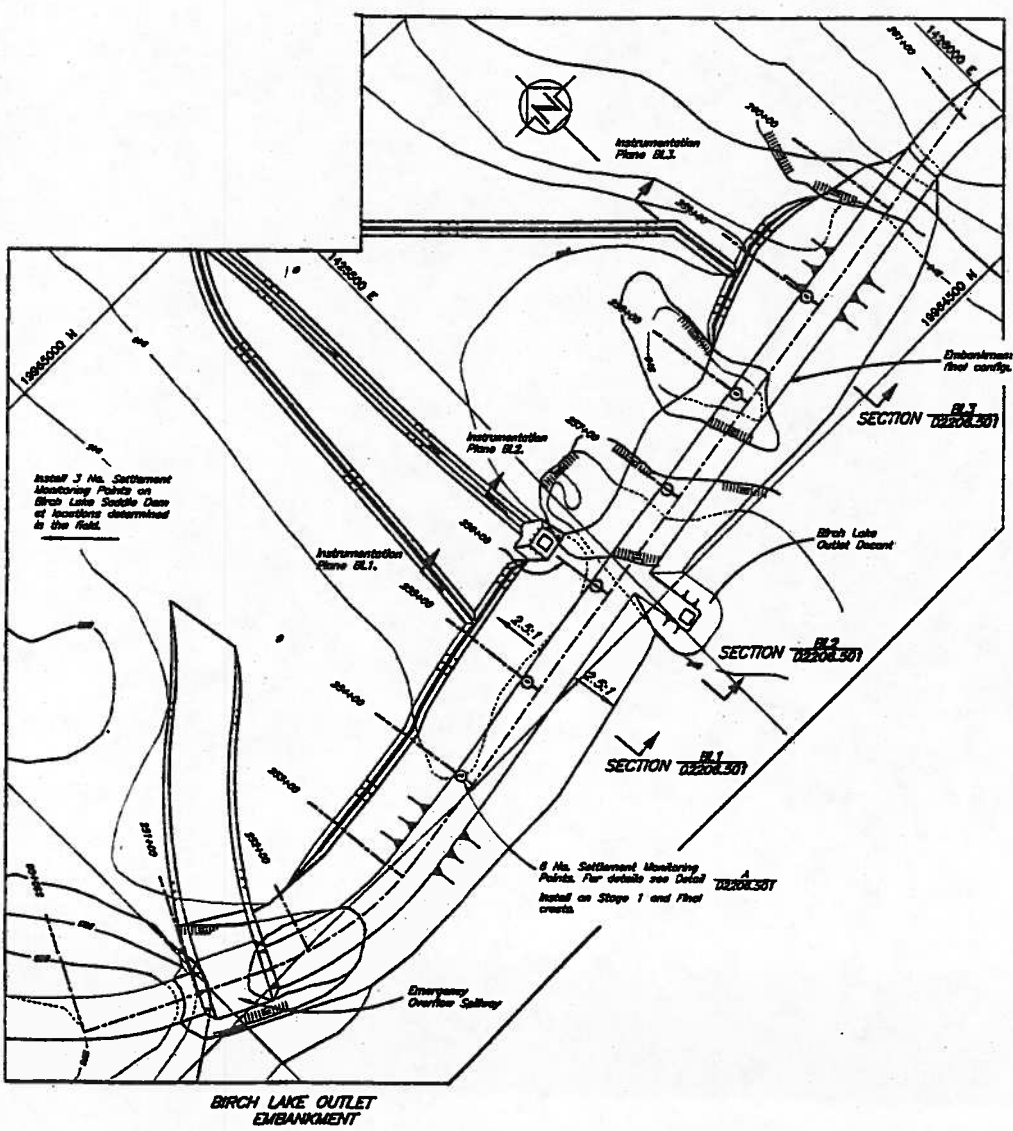
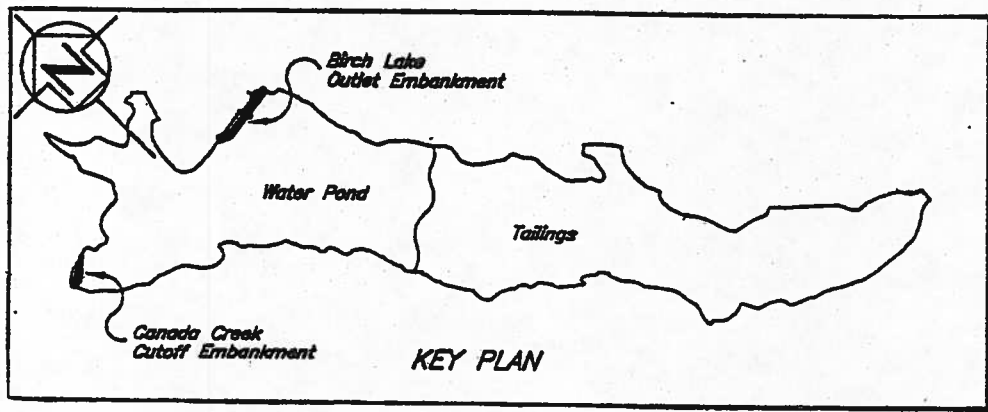
SCHEDULE 'B'

Parameter / Characteristic / Data	Sample Category		
	B.1	B.2	B.3
	Effluent	Receiving Surface Water	(filtered) Groundwater
Sampling Date	X	X	X
Water Level Elevation			X
Temperature	X	X	
pH	X	X	X
Hardness (as calcium carbonate)	X	X	
Total Suspended Solids	X	X	
Conductivity	X	X	X
Total Arsenic	X		
Total Copper	X		
Total Lead	X		
Total Nickel	X		
Total Zinc	X		
Total Iron	X		
Total Manganese	X		
Extractable Arsenic		X	X
Extractable Copper		X	X
Extractable Lead		X	X
Extractable Nickel		X	X
Extractable Zinc		X	X
Extractable Iron		X	X
Extractable Manganese		X	X
Weak Acid Dissociable Cyanide (as CN)	X	X	X
Total Cyanide (as CN)	X	X	X
Total Ammonia (as N)	X	X	
Un-ionized Ammonia (as NH ₃)	X	X	
Nitrate + Nitrite (as N)	X	X	X
Sulphates (as SO ₄)	X	X	X
Sodium	X	X	X

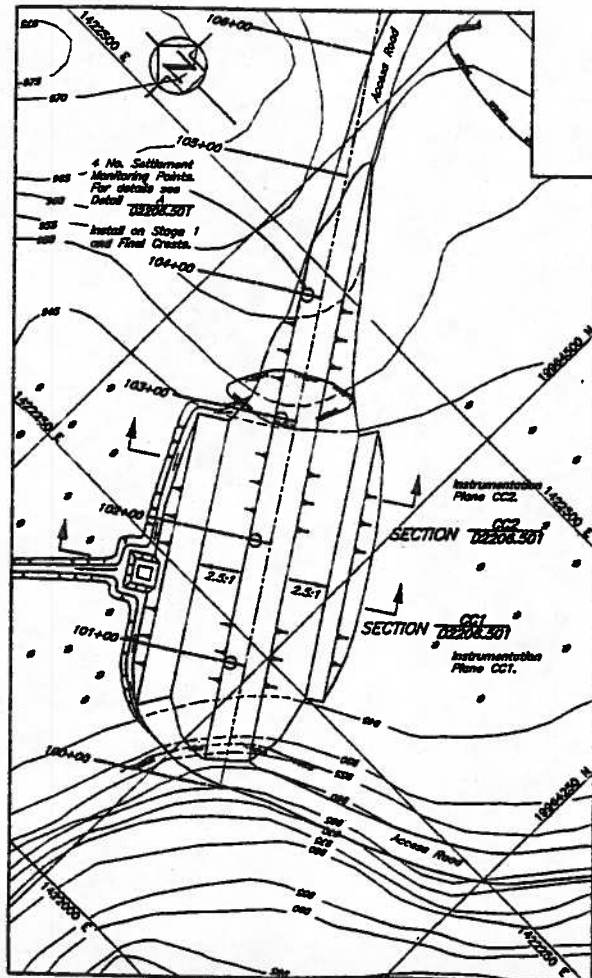
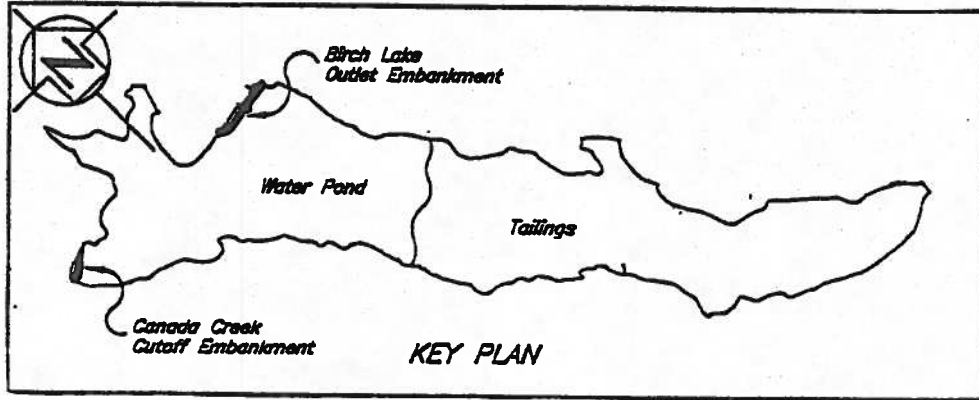
APPENDIX 'A'



APPENDIX 'B'



APPENDIX 'C'



CANADA CREEK CUTOFF EMBANKMENT