

APPENDIX 1.4

ENVIRONMENT ACT LICENSE

2981

Manitoba



Conservation

Climate Change and Environmental Protection Division
Environmental Assessment and Licensing Branch
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5
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CLIENT FILE NO. : 5463.00

August 23, 2011

Dr. David Mchaina
Victory Nickel Inc.
Suite 1802-80 Richmond St. West
Toronto ON M5H 2A4

Dear Dr. Mchaina:

Enclosed is **Environment Act Licence No. 2981** dated August 23, 2011 issued to **Victory Nickel Inc.** for the construction, operation, and subsequent de-commissioning, of a 10,000 tonnes per day open pit nickel ore mining, milling, and concentrating Development as per the Proposal dated April 30, 2010, including the mining and processing of 4,100 tonnes per day of frac sand, and the trenching and mining of certain peat overburden, collectively called the "Minago Project", to be located on Highway No.6 at a site approximately 225 kilometres south of Thompson, on Mineral Lease ML-002, comprised of Lots 1 to 12, Group 372, Plans 17614 to 17650, as shown on Director of Surveys; and including the construction and eventual de-commissioning of a 4.2 kilometre access road, the construction and operation of a tailings waste rock management facility; the installation and operation of groundwater drawdown wells to facilitate access to the mining target; and the installation and operation of two sewage treatment facilities.

In addition to the enclosed Licence requirements, please be informed that all other applicable federal, provincial and municipal regulations and by-laws must be complied with. A Notice of Alteration must be filed with the Director for approval prior to any alteration to the Development as licensed.

For further information on the administration and application of the Licence, please feel free to contact Siobhan Burland Ross, Environmental Engineer at (204)-945-7015.

Pursuant to Section 27 of The Environment Act, this licensing decision may be appealed by any person who is affected by the issuance of this Licence to the Minister of Conservation within 30 days of the date of the Licence.

Yours truly,

A handwritten signature in blue ink that reads "Tracey Braun".

Tracey Braun, M. Sc.
Director
Environmental Assessment and Licensing

Enc.

c: D. Labossiere, Environmental Operations Public Registries

NOTE: Confirmation of Receipt of this Licence No. 2981 (*by the Licensee only*) is required by the Director of Environmental Assessment and Licensing. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by September 6, 2011.

On behalf of Victory Nickel Inc.

Date

LICENCE

Licence No. / Licence n° 2981

Issue Date / Date de délivrance August 23, 2011

In accordance with The Environment Act (C.C.S.M. c. E125) /
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Section 11(1) / Conformément au Paragraphe 11(1)

THIS LICENCE IS ISSUED TO: / CETTE LICENCE EST DONNÉE À:

VICTORY NICKEL INC.; "the Licencee"

for the construction, operation, and subsequent de-commissioning, of a 10,000 tonnes per day open pit nickel ore mining, milling, and concentrating Development as per the Proposal dated April 30, 2010, including the mining and processing of 4,100 tonnes per day of frac sand, and the trenching and mining of certain peat overburden, collectively called the "Minago Project", to be located on Highway No.6 at a site approximately 225 kilometres south of Thompson, on Mineral Lease ML-002, comprised of Lots 1 to 12, Group 372, Plans 17614 to 17650, as shown on Director of Surveys; and including the construction and eventual de-commissioning of a 4.2 kilometre access road, the construction and operation of a tailings waste rock management facility; the installation and operation of groundwater drawdown wells to facilitate access to the mining target; and the installation and operation of two sewage treatment facilities.

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 international standard ISO/IEC 17025, or otherwise approved by the Director;

"**AP**" means the maximum acid-generation potential, expressed as tonnes of CaCO₃ 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;

"**composite sample**" means as defined in the MMER;

“**contaminated soil**” means soil which contains contaminant concentrations in excess of the applicable remediation criteria cited in the CCME’s “Canadian Environmental Quality Guidelines” report ISBN 896-997-34-1, update 5.0, 2006, and or any future amendment thereof;

“**Director**” means an employee so designated pursuant to The Environment Act;

“**Director of Mines**” means the Director of Innovation, Energy and Mines;

“**effluent**” means any treated or untreated mine water released into the environment;

“**EEM**” means Environmental Effects Monitoring;

“**final discharge point**”, in respect of an effluent release, means an identifiable discharge point at the mine beyond which the Licencee no longer exercises any further control over the quality of the effluent, which for the purposes of this Licence, would be each of the two mine water effluent discharge weirs located on the outfalls from the final polishing cell of the TWRMF into the Minago River and the Oakley Creek waterways;

“**grab sample**” means a grab sample as defined in the MMER;

“**Metal Mining Effluent Regulations**” means the *Metal Mining Effluent Regulations* (SOR/2002-222), or any future amendments thereto, promulgated under the federal *Fisheries Act*;

“**MMER**” means the federal Metal Mining Effluent Regulations;

“**mine**” includes all of the surface and sub-surface workings, overburden, waste rock and ore stockpiles, crusher, mill/concentrator, all ancillary buildings, wastewater treatment facilities, the impoundment or control facilities, the TWRMF, and such other on-site infrastructure as may be located on the mine site and associated with the Development;

“**mine site**” includes the whole operational or disturbed area of land within the boundaries of those surface rights acquired and held by the Licencee for the operation of the Development;

“**mine water**” means fluids pumped to the surface from underground mine workings or from an open pit, or fluids used to transport tailings, or contaminated runoff or leachate from ore or waste rock stockpiles exposed to precipitation, or polluted mine site runoff, or seepage or run-off losses from tailings deposits stored on the surface of land , or any combination thereof;

“**NP**” means the maximum neutralizing potential, expressed as tonnes of CaCO₃ per 1,000 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;

"ore" means a mineralized rock containing sufficient mineral value for the purposes of this Development;

"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 83/2003* respecting onsite wastewater management systems, or any future amendments thereto;

"solid waste" means solid waste as defined in *Manitoba Regulation 150/91* respecting waste disposal grounds, or any future amendments 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 Environment Federation;

"TWRMF" means Tailings and Waste Rock Management Facility;

"tailings" means those granular solids which are discarded as waste material in the process of milling and concentrating commercial minerals present in the milled ore; and

"undiluted" means free of extraneous unpolluted sources of water which could feasibly be prevented from mixing with the mine water or effluent prior to its discharge at a designated final discharge point, or not having water added for the purpose of meeting any effluent quality limits specified in this Licence or in the MMER.

GENERAL REQUIREMENTS

1. In addition to any of the following specifications, limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze 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, ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates and for such duration and at such frequencies as may be specified;
 - b) determine the environmental impact associated with the release of any pollutant 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 Licencee 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) have all analytical determinations undertaken by an accredited laboratory or a laboratory approved by the Director; and
 - c) report the results of all monitoring and testing to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the samples being taken.
3. The Licencee shall submit all information required to be provided to the Director under this Licence, in writing, and in such (including number of copies), and of such content as may be required by the Director, and each submission shall be clearly labeled with the Licence Number and Client File Number associated with this Licence.
4. The Licencee shall, during construction of the Development, dispose of all sewage and septage from on-site sanitary facilities in accordance with:
 - a) *Manitoba Regulation 83/2003* respecting Onsite Wastewater Management Systems, or any future amendment thereof; or
 - b) This Licence.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Land Use and Construction Activities

5. The Licencee shall restrict surface construction activities related to the proposed Development to only those lands for which the Licencee:
 - a) possesses the surface Rights or a mineral lease; or
 - b) is in possession of applicable work permits or timber cutting permits.
6. The Licencee shall comply with Manitoba Water Stewardship's Wetland Policy that states that the net loss of semi-permanent or permanent wetlands shall not occur. The Licencee shall establish and maintain a buffer zone of a minimum of fifteen metres from wetlands. The loss of a wetland shall require the Licencee to enter into a habitat compensation agreement, in consultation with Manitoba Water Stewardship.
7. The Licencee shall prepare a wildlife monitoring program in consultation with Manitoba Conservation Wildlife Branch and shall implement the plan as approved by the Director of the Wildlife Branch.

8. During construction of the Development, the Licencee shall establish and maintain an undisturbed native vegetation area located upslope from the ordinary high water mark and adjacent to all waterbodies and waterways connected to the provincial surface water network in accordance with the following:
 - a) A 30-metre undisturbed native vegetation area for lands located adjacent to surface waters;
 - b) Permanent development is prohibited within an undisturbed vegetation area;
 - c) New and existing structures within this undisturbed native vegetation area is limited to a maximum of 25 % of the shoreline length (for example: 25 metres per 100 metres of shoreline length) of each lot; and
 - d) Alteration within this undisturbed native vegetation area—including the removal of near shore or stream aquatic habitat—shall not occur unless an activity conforms to a Department of Fisheries and Oceans Canada Operational Statement or an activity is reviewed by the Department of Fisheries and Oceans Canada.
9. The Licencee shall comply with the *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*.
10. The Licencee shall, during construction and operation of the Development, implement measures designed to minimize erosion and prevent the deposition of sediment into waterbodies.
11. The Licencee shall comply with the *Manitoba In-Water Construction Timing Windows for the Protection of Fish and Fish Habitat* as outlined in Fisheries and Oceans Canada *Manitoba Operational Statement*.

Respecting Financial Assurance

12. The Licencee shall not commence construction of the proposed Development unless the Licencee has first posted with Innovation, Energy & Mines:
 - a) a permit bond issued by a surety company licensed to do business in the Province of Manitoba, or
 - b) an irrevocable letter of credit; or
 - c) cash,

in an amount satisfactory to the Director of Innovation, Energy & Mines, whereby the Licencee would be fully liable for the environmental restoration of any disturbed, developed or polluted areas at the mine site.

Respecting the Proposed Access Road

13. The Licencee shall, in consultation with the Norway House Resource Management Board, develop and submit to the Director, for approval, an Access Management Plan for the construction and operation of the access road, until it is fully closed with confirmation that no further management of wastes, including run-off, are required. The Licencee shall

assume full responsibility for the implementation of the approved plan in the post-closure period of the Mine, including wildlife crossings and signage.

Respecting Water Diversion and Use

14. The Licencee shall not commence any well drilling or water diversion activities involving the establishment or use of local wells unless such activities are licensed under *The Water Rights Act*.
15. The Licencee shall construct and maintain any process water intake line from any water body or waterway, with a fitted fish screen that conforms to the "Freshwater Intake End-of-Pipe Fish Screen Guideline" published by the Department of Fisheries and Oceans.

Respecting the Management of Sewage

16. The Licencee shall construct and operate an extended aeration sewage treatment plant at each of the campsite and the mill / concentrator complex, in accordance with the specifications, limits, terms and conditions prescribed under Schedule A of this Licence.

Respecting the Construction of the TWRMF

17. The Licencee shall construct and maintain the TWRMF such that the entire base and inner banks of the intended tailings depository within the TWRMF are lined with a minimum 1.0 metre thickness of compacted clay, or other material acceptable to the Director, possessing a maximum hydraulic conductivity of 1×10^{-7} m/sec.
18. The Licencee shall arrange with the designated Environment Officer a mutually acceptable time and date for any required soil sampling between the 15th day of May and the 15th day of October of any year, unless otherwise approved by the Environment Officer.
19. The Licencee shall take and test samples, in accordance with Schedule C attached to this Licence, from the liner of the TWRMF; the number and location of samples and test methods to be specified by the designated Environment Officer.
20. The Licencee shall, not less than 2 weeks before the TWRMF is placed in operation, submit for the approval of the Environment Officer the results of the tests carried out pursuant to Clause 16 of this Licence.

Respecting the Final Discharge Points and Effluent Quality Restrictions

21. The Licencee shall:
 - a) not discharge, or cause or allow the release of, any minewater effluent from the Development into the aqueous environment, except through either or both of the two final discharge points and in accordance with the MMER;

22. The Licencee shall not release any effluent from a final discharge point if:
- a) the concentration of total phosphorous exceeds 1.0 mg/L;
 - b) the quality or toxicity of the effluent is in non-compliance with the MMER, or
 - c) the effluent quality is resulting in, or is likely to directly or cumulatively result in, a downstream degradation of the water quality immediately beyond a maximum 10% mixing zone (by volume) within Oakley Creek and /or the Minago River, relative to the Manitoba *Water Quality Standards, Objectives, and Guidelines* and/or nutrient control strategies and regulations developed by Manitoba Water Stewardship.

Respecting the Final Effluent and the Receiving Aqueous Environment, Monitoring, Record Keeping and Reporting

23. The Licencee shall, in accordance with the MMER, and upon the commencement of mining,
- a) install, operate, maintain and annually calibrate a continuous effluent flow measuring device, at each of the two final discharge points, rated to an accuracy within $\pm 15\%$; and
 - b) measure and record each monthly volume (in cubic metres) of effluent released through each of the two final discharge points.
24. The Licencee shall:
- a) in such a manner, and at such frequencies, as required by the MMER:
 - i) collect sufficient undiluted composite or grab samples, as the case may be, of effluent being released at each of the two final discharge points, and have each sample analyzed for pH and each deleterious substance and characteristic as laid out in the MMER, including such additional parameters, characteristics and information as may otherwise be requested in writing by the Director; and
 - ii) collect sufficient undiluted and representative samples of effluent released from each of the two final discharge point at such frequency as required by the MMER, and have each such obtained sample subjected to acute lethality tests and *Daphnia magna* toxicity tests; and
 - b) unless otherwise requested by the Director, collect, at monthly intervals, composite samples of the final effluent, and have these samples analyzed for:
 - i) total phosphorus as P;
 - ii) total dissolved phosphorus as P;
 - iii) ammonia nitrogen as N;
 - iv) nitrate-nitrite nitrogen as N; and
 - v) total Kjeldahl nitrogen as N.
25. The Licencee shall, twice monthly, at approximately two week intervals, collect grab samples of minewater at each of the two final discharge points located at the final polishing pond, and have the collected samples analyzed for all of the parameters required by Clause 21 of this Licence, excluding the acute lethality, toxicity and the radium 226 tests.

26. The Licencee shall, consistent with the MMER, submit quarterly reports on all the required effluent quality analyses, flow rate measurements, and determinations recorded pursuant to Clauses 20, 21 and 22 of this Licence, to the Director, in writing and in an electronic format satisfactory to the Director, no later than 45 days after the end of each calendar quarter.
27. The Licencee shall, with respect to each month of production, determine and record:
 - a) the tonnes of each of nickel ore and frac sand brought to surface;
 - b) the tonnes of nickel ore processed through the mill; and
 - c) the volume of tailings directed into the TWRMF; andreport each of these monthly determinations to the Director in writing and in an electronic format satisfactory to the Director, on a quarterly basis at the same time as the quarterly effluent monitoring results are submitted.
28. The Licencee shall conduct a comprehensive monitoring program, beginning in Fall 2011, including water quality, sediment quality, fish tissue, and toxicity testing. In order to reduce duplication, monitoring components shall be harmonized with the federal Environmental Effects Monitoring Program. The comprehensive monitoring program shall be submitted for approval to the Director and to Manitoba Water Stewardship's Fisheries Branch and Water Quality Management Section and shall address, at minimum, all items laid out in Schedule B of this Licence.
29. The Licencee shall conduct all Environmental Effects Monitoring (EEM) studies, as required through the provisions of the MMER, and provide the Director, as well as Manitoba Water Stewardship, with a printed copy and electronic copy of each such completed EEM study.
30. The Licencee shall submit an annual report to the Director that contains, at minimum, a summary of the operations of the Development during the year, and a summary of all information required to be submitted pursuant to Clauses 13, 23, 24, 25, 26, and 29 of this Licence. The annual report shall be submitted to the Director within 60 days of the end of each calendar year.
31. The Licencee shall provide a copy of the comprehensive monitoring program required by Clause 25 to the Norway House Resource Management Board and shall provide a notice each year when the annual report has been submitted to the Director. Upon the request of the Norway House Resource Management Board, the Licencee shall provide them with a copy of the annual report or other requested information.

Respecting Air Emissions

32. The Licencee shall:
 - a) direct all vented air emissions from the surface rock/ore crushing and grinding facility through a baghouse or electro-static air filtering facility;
 - b) regularly maintain the operating efficiency of the filter bags in the baghouse facility;

- c) not emit particulate matter from either chosen system into the environment whereby the level of particulate matter in the air emitted into the environment exceeds 0.23 grams per dry standard cubic metre calculated at 25 degrees Celsius and 760 millimetres of mercury, corrected to 12 percent carbon dioxide;
- d) at least once every 12 months, arrange to have the air emissions released from a baghouse or electro-static precipitator tested by a third party qualified technician for confirming the level of compliance with sub-Clause 29(c) of this Licence, and
- e) submit the findings of the air emission tests to the Director no later than one month after the completion of each annual air emission sampling program.

Respecting Waste Rock and Contaminated Soil

33. The Licencee shall not use any contaminated soil or potentially acid-generating rock as a construction material in the surface development of this mine site or at any other off-site location, nor release such material to any other person for off-site use, nor store such rock material on surface.
34. The Licencee shall, with respect to waste rock brought to surface for construction or storage purposes:
- a) collect sufficient representative bulked samples once for every 10,000 tonnes of waste rock brought to surface, and have the newly collected samples evaluated by a certified laboratory for acid generation potential using static acid-base accounting methods unless dynamic testing is warranted; and
 - b) submit to the Director the analytical and interpretive laboratory results of the tests carried out on the tested bulk rock samples within two weeks after the data has been provided by the commissioned laboratory to the Licencee.
35. The Licencee shall dispose of any sludges resulting from the clean-out of underground mine water sumps, or from the clean-out of the surface settling ponds, or from the chemical treatment of any mine water, into:
- a) a secure depository in the Development's underground mine workings; or
 - b) a surface waste disposal ground permitted under *Manitoba Regulation 150/91*, or any future amendment thereto, subject to being appropriately dewatered at the site of the Development to meet the criteria of solid waste as defined in the said regulation and being accepted, in writing, by the operator of the waste disposal ground.
36. The Licencee shall not deposit any garbage or other solid waste into the environment except into a waste disposal ground operating under the authority of an Environment Act Licence or a permit issued pursuant to *Manitoba Regulation 150/91*, or any future amendment thereto.

Respecting Recyclable Waste

37. The Licencee shall not deposit bulky metallic wastes, used tires, used oil and other fluid lubricants, or any other class of recyclable waste substances as may be specified by the Director, into the environment except to:
- a) a facility or infrastructure which accepts such materials for recycling; or
 - b) a waste disposal ground operating under the authority of an Environment Act Licence or a permit issued pursuant to *Manitoba Regulation 150/91*, or any future amendment thereto, where these recyclable substances are grouped and kept distinctly segregated from each other and are not buried (unless otherwise specified by the Director) so as to readily facilitate their recycling.
38. The Licencee shall make reasonable efforts to initiate and maintain a recycling program for those substances identified in Clause 34 of this Licence.

Respecting Dangerous Goods and /or Hazardous Wastes

39. The Licencee shall not establish any petroleum fuel storage facility closer than 100 metres from the high water mark of the nearest shoreline of the nearest waterway or water body.
40. The Licencee shall comply with all the applicable requirements of:
- a) *Manitoba Regulation 188/2001* or any future amendment thereto, respecting the on-site storage and handling of petroleum products and allied products; and
 - b) *The Manitoba 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 Development.
41. The Licencee shall operate the Development such that:
- a) all used oil and hydraulic fluids removed from on-site machinery and vehicles are collected, transported and stored in secure, properly labeled and non-leaking containers until recycled; and
 - b) if the containers are temporarily stored on site, the storage area is constructed with a base and containment dikes fully lined on the interior with an impermeable liner or is otherwise constructed with equivalent containment provisions satisfactory to the Director.
42. The Licencee shall dispose of all soils impacted with petroleum hydrocarbons in accordance with Manitoba Conservation's *Guideline for the Treatment and Disposal of Petroleum Contaminated Soil*.

Respecting an Emergency Response Plan

43. The Licencee shall:
- a) within two months of the Development having commenced commercial production through the mill, submit to the Director a copy of the Emergency

Response Plan as prepared pursuant to the requirements of the MMER, but also addressing chemical spills and potential industrial accidents in accordance with the Canadian Centre for Occupational Health and Safety emergency planning guidelines; and

- b) maintain the Emergency Response Plan and immediately provide the Director with any updated pages.

Respecting Mine Closure and Decommissioning

- 44. The Licencee shall annually review the Mine Closure Plan and submit to the Director any updated or revised pages.
- 45. The Licencee shall, in the course of developing the mine site area, collect and stock-pile for future re-vegetation purposes, any removed and suitable overburden material.
The Licencee 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 Mine Closure Plans for mining developments, particularly in regards to addressing environmental issues or liabilities including, but not necessarily limited to:
 - i) the decommissioning and rehabilitation of disturbed land areas;
 - ii) the containment, or mitigation of any elevated pollutants in both the local soil and the local surface waterway and groundwater;
 - iii) the decommissioning of access roads and any stream crossings;
 - iv) the restoration or replacement of disturbed fish habitat;
 - v) 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 Mine Closure Plan to the satisfaction of the Director.
- 46. The Licence shall incorporate a staged approach to reductions in flows upon mine closure.
- 47. The Licencee shall provide the Director and Manitoba Water Stewardship's Water Quality Management Section with a detailed estimation of the quality of the open pit water when allowed to flood upon mine closure. The Licencee shall provide a water treatment plan in the event that the water quality of the open pit, upon mine closure, does not comply with Manitoba's water quality regulations.

Respecting Crown-Aboriginal Consultation


48. The Licencee shall consider the results of future Crown-Aboriginal consultation. The Licencee will, to the best of its ability, promote meaningful participation of the Communities of Interest in the environmental monitoring and evaluation of measures that prevent or mitigate any potential adverse Environmental Effect of the Project. The Licencee shall, where necessary, revise environmental programs to reflect input from Crown-Aboriginal consultation.

Respecting the Proposed Environmental Management Plan

49. The Licencee shall annually review the progress and status of the implementation of each proposed “Environmental Management Plan” laid out in the Proposal, and submit to the Director a summary of the actions undertaken over the previous year to minimize or improve upon the environmental effects of implementing the Development.

REVIEW AND REVOCATION

- A. If, in the opinion of the Director, the Licencee has exceeded or is exceeding, or has or is failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may temporarily or permanently, revoke this Licence.
- B. If construction of the development has not commenced within three years of the date of this Licence, the Licence is revoked.
- C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licencee, the Director may require the filing of a new proposal pursuant to Section 11 of *The Environment Act*.


Tracey Braun M, Sc.
Director
Environment Act

File: 5463.00

SCHEDULE A TO ENVIRONMENT ACT LICENCE NO.: 2981

In accordance with Clause 16 of this Licence, this schedule outlines the specifications, limits, terms and conditions for the construction, operation and maintenance of the wastewater collection system and sewage treatment plants.

DEFINITIONS

"composite sample" means a quantity of wastewater consisting of a minimum of 10 equal volumes of effluent, or flow proportional volumes collected over a 24-hour period, and may be collected manually or by means of an automatic sampling device;

"effluent" means treated wastewater flowing or pumped out of the sewage treatment plant;

"fecal coliform" means aerobic and facultative, Gram-negative, nonspore-forming, rodshaped bacteria capable of growth at 44.5°C, and associated with fecal matter of warmblooded animals;

"final discharge point" means the outlet of the UV disinfection system at which an effluent monitoring station is located;

"five-day carbonaceous biochemical oxygen demand (CBOD5)" means that part of oxygen demand usually associated with biochemical oxidation of carbonaceous organic material within 5 days at a temperature of 20°C, excluding the oxygen demand usually associated with biochemical oxidation of nitrogenous organic matter;

"grab sample" means a quantity of wastewater taken at a given place and time;

"headworks" means the initial structures and devices of the sewage treatment plant;

"influent" means water, wastewater, or other liquid flowing into the sewage treatment plant;

"MPN index" means the most probable number of coliform organisms in a given volume of wastewater as determined by statistical estimation;

"record drawings" means engineering drawings complete with all dimensions which indicate all features of the wastewater collection system and sewage treatment plant as they have actually been built;

"sewage" means human body, toilet, liquid, waterbourne culinary, sink or laundry waste;

"sewage effluent" means sewage after it has undergone at least one form of physical, or biological treatment;

"sewage treatment plant" means the component of this development which consists of the central facility, of the wastewater treatment facilities, which contains all treatment processes exclusive of the wastewater collection system;

"sludge" means accumulated solid material containing large amounts of entrained water which has separated from wastewater during processing;

"sludge solids" means solids in sludge;

"total coliform" means a group of aerobic and facultative anaerobic, gram-negative, non-spore forming, rod-shaped bacteria, that ferment lactose with gas and acid formation within 48 hours at 35°C and inhabit predominantly the intestines of man or animals, but are occasionally found elsewhere and include the sub-group of fecal coliform bacteria;

"UV disinfection" means a disinfection process for treating wastewater using ultraviolet radiation;

"UV germicidal dose" means the units of intensity of ultra violet light that is required to kill bacteria and viruses present in the sewage effluent;

"waste disposal ground" means an area of land designated by a person, municipality, provincial government agency, or crown corporation for the disposal of waste and approved for use in accordance with *Manitoba Regulation 150/91* or a Licence pursuant to *The Environment Act*;

"wastewater" means the spent or used water of a community or industry which contains dissolved and suspended matter;

"wastewater collection system" means the sewer and pumping system used for the collection and conveyance of domestic, commercial and industrial wastewater; and

"wastewater effluent" means wastewater after it has undergone at least one form of physical, chemical or biological treatment.

GENERAL SPECIFICATIONS

- I. The Licencee shall operate the sewage treatment plant in such a manner that:
 - a) all wastewater generated at the development is directed toward the sewage treatment plant or other approved sewage treatment facilities;
 - b) only wastewater as defined in this Licence is discharged into the sewage treatment plant;
 - c) sludge solids are disposed in a waste disposal ground operated under:
 - i) a permit issued in accordance with *Manitoba Regulation 150/91* respecting Waste Disposal Grounds, or any future amendment thereof; or

- ii) the authority of a Licence issued under *The Environment Act*; and
 - d) sludge solids are transported in containers in such a manner to prevent loss of solids to the satisfaction of an Environment Officer.
2. The Licencee shall install, operate and maintain the wastewater collection system and sewage treatment plant such that freezing of the effluent in the pipes is prevented.
 3. The Licencee shall not spill, or allow to be spilled, wastewater and/or sludge in the area around the sewage treatment plant.
 4. The Licencee shall undertake a regular program of maintenance for the sewage treatment plant.
 5. The Licencee shall obtain and maintain classification of the wastewater collection system and sewage treatment plant pursuant to *Manitoba Regulation 77/2003* respecting Water and Wastewater Facility Operators, or any future amendment thereof, and maintain compliance with all requirements of the regulation including, but not limited to, the preparation and maintenance of a Table of Organization, Emergency Response Plan and Standard Operating Procedures.
 6. The Licencee shall carry out the operation of the wastewater collection system and sewage treatment plant with individuals properly certified to do so pursuant to *Manitoba Regulation 77/2003* respecting Water and Wastewater Facility Operators or any future amendment thereof.
 7. The Licencee shall have adequate instrumentation installed to provide constant monitoring of the UV process to ensure compliance with the disinfection requirements. Such instrumentation shall include but not be limited to the following:
 - a) an UV sensor to monitor lamp intensity;
 - b) an appropriate alarm and shutdown systems;
 - c) a lamp monitoring system to identify the location of individual lamp failures;
 - d) an hour meter which cannot be reset to display actual hours of UV lamp operation; and
 - e) protective circuits for overcurrent and ground current leakage detection.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

8. The Licencee shall, prior to construction of the sewage treatment plant, submit a design report to the Director, for approval, that includes a description of how the maximum daily flow rate and maximum organic loading was determined. The Licencee shall operate and maintain the sewage treatment plant in such a manner that the maximum daily flow rate and organic loading are not in excess of the design approved by the Director.

9. The Licencee shall, prior to construction of the wastewater treatment lagoon, submit a design report to the Director, for approval, that includes a description of the proposed liner system. The Licencee shall construct and operate the wastewater treatment lagoon in accordance with any written specifications, limits, terms and conditions, subsequently specified by the Director.
10. The Licencee shall notify the assigned Environment Officer not less than two weeks prior to beginning construction of the sewage treatment plant. The notification shall include the intended starting date of construction and the name of the Licencee's contact person at the construction site.
11. The Licencee shall not cover the various components of the sewage treatment plant in a manner that obscures them from view or interferes with inspection of the sewage treatment plant without authorization from the assigned Environment Officer.
12. The Licencee shall utilize UV lamps that have a rated output of at least 254 nanometres (nm) capable of delivering a germicidal dose in excess of 30,000 microwatt seconds/sq cm.
13. The Licencee shall operate and maintain the UV units to give a germicidal dose of 80% or more of the design germicidal dose, at the end of the lamp life.
14. The Licencee shall install and maintain a security fence around all components of the sewage treatment plant that are not buried or enclosed within secured buildings.
15. The Licencee shall, prior to disposal at a waste disposal ground, subject all sludge to aerobic digestion, or an equivalent digestion process acceptable to the Director.
16. The Licencee shall not discharge effluent from the sewage treatment plant, as sampled at the monitoring station located after UV disinfection, where:
 - a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand (CBOD₅), is in excess of 25 milligrams per litre;
 - b) the fecal coliform content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample;
 - c) the total coliform content of the effluent, as indicated by the MPN index, is in excess of 1500 per 100 millilitres of sample;
 - d) the total suspended solids content of the effluent, as indicated by the nonfilterable residue is in excess of 25 milligrams per litre; and
 - e) the concentration of unionized ammonia is in excess of 1.25 mg/L, expressed as nitrogen (N), at 15°C ± 1°C.

MONITORING AND REPORTING SPECIFICATIONS

17. The Licencee shall monitor, and make the records of such monitoring available to the Director as may be requested, the sewage treatment process for the following parameters:
 - a) total flow rate(s) into the sewage treatment plant;
 - b) pH, dissolved oxygen, temperature, and tank liquid levels of the digestion processes;
 - c) flow rates into and through the UV disinfection system; and
 - d) other process parameters approved or required by the Director.

18. The Licencee shall:
 - a) construct and make available for use by an Environment Officer, a secured and heated effluent monitoring station, allowing direct access to the discharge pipeline following the UV disinfection;
 - b) have the monitoring station accessible to an Environment Officer at all times;
 - c) install and maintain a flow measuring device at the monitoring station or at a location acceptable to the Director which is capable of measuring the volume of effluent with an accuracy of 2 percent;
 - d) have the flow measuring device re-calibrated biannually or on the request of an Environment Officer;
 - e) equip the monitoring station with a flow-proportional sampling device equipped to function with the flow measuring device and have the sampling device available on request for use by an Environment Officer; and
 - f) equip the monitoring station with an electrical power source of 15 amperes at 110 volts.

19. The Licencee shall arrange for the taking of samples of influent sewage at the headworks and treated sewage effluent at the final discharge point.

20. The Licencee shall:
 - a) take one composite sample of effluent from the effluent monitoring station during the discharge period once each month;
 - b) take three grab samples of the effluent from the effluent monitoring station during the discharge period once each month;
 - c) have the composite effluent sample analyzed for five-day carbonaceous biochemical oxygen demand, temperature, pH, ammonia and total suspended solids; and
 - d) have the grab samples analyzed for fecal coliform content and total coliform content.

21. The Licencee shall, in case of physical or mechanical breakdown of the wastewater collection system or sewage treatment plant:
 - a) notify the Director immediately;

- b) identify the repairs required to the wastewater collection system or sewage treatment plant; and
- c) complete the repairs in accordance with the written instructions of the Director.

22. The Licencee shall:

- a) prepare "record drawings" for the sewage treatment plant and shall label the drawings "Record Drawings"; and
- b) provide to the Director, within six months of approved commissioning of the sewage treatment plant, two sets of "record drawings" of the sewage treatment plant.

SCHEDULE B TO ENVIRONMENT ACT LICENCE NO.:2981

Comprehensive Monitoring Program and Annual Report

1. The objectives of the comprehensive monitoring program shall be clearly stated and shall include at minimum the following:
 - a) To follow the requirements of the MMER;
 - b) To monitor the final effluent flows and document signs of change within the watercourses, through physical measurements and photographs;
 - c) To monitor surface water quality in Oakley Creek and groundwater quality downstream of the pit following closure;
 - d) To undertake a sensitivity analysis on the water balance for the TWRMF after mine closure; and
 - e) To monitor water quality in the Minago River to determine the degree of recovery after closure.
2. The Licencee shall verify “no effects” on the baseline flow of surface waters from the cone of depression established during groundwater pumping, at least towards the point where equilibrium is established within six months.
3. The Licencee shall, during subsequent stages of the mine operation, confirm the predictions of runoff from the model used with a continuous runoff model that includes a comprehensive formulation of hydrologic processes for the generation of flows (i.e., surface, interflow and groundwater).
4. The Licencee shall develop and implement a separate monitoring program for the fish community, subject to review and approval by Fisheries Branch, that meets the following objectives:
 - a) To establish the baseline condition for the fish community in Oakley Creek and the Minago River;
 - b) To ensure that the utilization of Oakley Creek and the Minago River by transitory species is understood and characterized;
 - c) To validate whether or not the fish community is not impacted by the change in flows; and
 - d) To determine the maximum in-stream flow requirements for fish habitat.
5. The Licencee shall
 - a) obtain monthly samples at the following stations:
 - i) Minago River, upstream and downstream of the discharge point;
 - ii) Oakley Creek, upstream and downstream of the discharge point;
 - iii) Polishing pond discharge; and
 - iv) William River;
 - b) obtain quarterly samples at the following stations:
 - i) Tailings water;
 - ii) Limestone Bay;

- iii) Hill Lake;
- iv) Drunken Lake; and
- v) Cross Lake.

6. All monitoring data shall be summarized and interpreted in an annual report. The concentration of each parameter must be evaluated in reference to previous years' monitoring and baseline conditions at each site. The report must note any changes in concentrations over baseline conditions and the direction of the change. The report shall include accidents or malfunctions at the site. The Licencee shall provide an electronic copy of all monitoring data to Manitoba Water Stewardship's Water Quality Management Section and Fisheries Branch.
7. Automatic gauging stations shall be located upstream and downstream in the Minago River, Oakley Creek as well as in the William River to provide a continuous record of water levels and flows to better quantify flows, improve and refine stage-discharge curves and estimated peak and low flow magnitudes for specified return periods. The Licencee shall provide, upon request and as part of the annual report, weekly summaries of depth (minimum, maximum and mean) and velocity (minimum, maximum and mean) for each station.
8. The Licencee shall demonstrate whether the data collected to date validates predictions. If predictions are not validated, an explanation, including whether the status of the effect has changed, adjusted outcomes, and adaptive management strategies must be submitted to the Director for approval and implemented as approved.
9. The Licencee shall develop and implement a monitoring program for Selenium that includes an initial baseline sampling of tissue and sediment at the following sites: Oakley Creek, Minago River, William River, Limestone Bay, Hill Lake, Drunken Lake and Cross Lake.
10. The Licencee shall continuously monitor the dissolved oxygen concentration of the polishing pond discharge.
11. The Licencee shall monitor oxygen concentrations upstream and downstream of the discharge area.
12. The Licencee shall, at a minimum, conduct an annual sediment sampling with a minimum three representative samples at each site with the top five centimetres of sediment analyzed for total metal analysis.

13. The Licencee shall monitor the following parameters on a monthly basis:

Parameter	Detection limit
DO	0.1 mg/L
pH	0.1 mg/L
Conductivity	1 us/cm
Total suspended solids	5 mg/L
Total dissolved solids	5 mg/L
Temperature	0.1 Celsius
Alkalinity	1 mg/L
Turbidity	0.01 NTU
Chloride	0.2 mg/L
Sulphate	0.5 mg/L
Nitrate/nitrite	0.01 mg/L
Ammonia	0.01 mg/L
Total phosphorus	0.001 mg/L
Total dissolved phosphorus	0.001 mg/L
Total Kjeldahl Nitrogen	0.2 mg/L
Chlorophyll a	0.1 µg/L
Total metal scan by ICPMS (see below)	Various
Total Hg (cold vapour)	< 0.02 µg/L
Hardness calculation	0.07 mg/L

List of total metals

Parameter	Detection Limit	Unit
Aluminum Al	0.001	mg/L
Antimony Sb	0.0002	mg/L
Arsenic As	0.0002	mg/L
Barium Ba	0.0002	mg/L
Beryllium Be	0.0002	mg/L
Bismuth Bi	0.0002	mg/L
Boron B	0.01	mg/L
Cadmium Cd	0.00055	mg/L
Calcium Ca	0.01	mg/L
Cesium Cs	0.0001	mg/L
Chromium Cr	0.0157	mg/L
Cobalt Co	0.0002	mg/L
Copper Cu	0.0018	mg/L
Iron Fe	0.01	mg/L
Lead Pb	0.0003	mg/L
Lithium Li	0.0002	mg/L
Magnesium Mg	0.01	mg/L
Manganese Mn	0.0002	mg/L
Molybdenum Mo	0.073	mg/L
Nickel Ni	0.0104	mg/L
Phosphorus PO4	0.03	mg/L
Potassium K	0.02	mg/L
Rubidium Rb	0.0002	mg/L
Selenium Se	0.001	mg/L
Silicon Si	0.05	mg/L
Silver Ag	0.0001	mg/L
Sodium Na	0.01	mg/L
Strontium Sr	0.0002	mg/L
Tellurium Te	0.0002	mg/L
Thallium Tl	0.008	mg/L
Thorium Th	0.0001	mg/L
Tin Sn	0.0002	mg/L
Titanium Ti	0.0002	mg/L
Uranium U	0.0001	mg/L
Vanadium V	0.0002	mg/L
Zinc Zn	0.0237	mg/L
Zirconium Zr	0.002	mg/L

SCHEDULE C TO ENVIRONMENT ACT LICENCE NO. 2981

Soil Sampling:

1. The Licencee shall provide a drilling rig, acceptable to the designated Environment Officer, to extract samples from the liner that is not placed or found at the surface of the structure. This includes all structures constructed with clay cut-offs at the interior base of the dyke or with a clay cut-off in the centre of the dyke. The drill rig shall have the capacity to drill to the maximum depth of the clay cut-off plus an additional depth of 2 metres. The drill rig shall be equipped with both standard and hollow stem augers. The minimum diameter of the hole shall be 5 inches.
2. For liners placed or found at the surface of the structure, the Licencee shall provide a machine, acceptable to the designated Environment Officer, capable of pressing a sampling tube into the liner in a straight line motion along the centre axis line of the sample tube and without sideways movement.
3. Samples shall be collected and shipped in accordance with ASTM Standard D 1587 (Standard Practice for Thin-Walled Tube Sampling of Soils), D 4220 (Standard Practice for Preserving and Transporting Soil Samples) and D 3550 (Standard Practice for Ring-Lines Barrel Sampling of Soils). Thin-walled tubes shall meet the stated requirements including length, inside clearance ratio and corrosion protection. An adequate venting area shall be provided through the sampling head.
4. At the time of sample collection, the designated Environment Officer shall advise the Licencee as to the soil testing method that must be used on each sample. The oedometer method may be used for a sample where the Environment Officer determines that the soil sample is taken from an undisturbed clay soil which has not been remoulded and which is homogeneous and unweathered. The triaxial test shall be used for all samples taken from disturbed and remoulded soils or from non-homogenous or weathered soils.
5. The Licencee shall provide, to the designated Environment Officer and to the laboratory technician, a report on the collection of soil samples that includes but is not limited to the following: a plot plan indicating all drill holes, onsite visual observations, sample location, depth or elevation of sample, length of advance of the sample tube length of soil sample contained in the tube after its advancement, the soil test method specified by the Environment Officer for each soil sample and all necessary instructions from the site engineer to the laboratory technician.
6. All drill and sample holes shall be sealed with bentonite pellets after the field drilling and sampling has been completed.

Soil Testing Methods:

1. Triaxial Test Method

- a) The soil samples shall be tested for hydraulic conductivity using ASTM D 5084 (Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter).
- b) Soil specimens shall have a minimum diameter of 70 mm. (2.75 inches) and a minimum height of 70 mm (2.75 inches). The soil specimens shall be selected from a section of the soil sample that contains the most porous material based on a visual inspection. The hydraulic gradient shall not exceed 30 during sample preparation and testing. Swelling of the soil specimen should be controlled to adjust for the amount of compaction measured during sample collection and extraction from the tube and the depth or elevation of the sample. The effective stress used during saturation or consolidation of the sample shall not exceed 40 kPa (5.7 psi) or the specific stress level, that is expected in the field location where the sample was taken, whichever is greater.
- c) A complete laboratory report, as outlined in ASTM D 5084, shall be supplied for each soil sample collected in the field.

2. Oedometer Test Method

- a) The soil samples shall be tested for hydraulic conductivity using ASTM D 2435 (Standard Test Method for One-Dimensional Consolidation Properties of Soils).
- b) Soil specimens shall have a minimum diameter of 50 mm. (2 inches) and a minimum height of 20 mm. (0.8 inches). The soil specimens shall be selected from a section of the soil sample that contains the most porous material based on a visual inspection. The soil specimen shall be taken from an undisturbed soil sample. The soil specimen shall be completely saturated.
- c) A complete laboratory report, as outlined in ASTM D 2435, shall be supplied for each soil sample collected in the field.