

**Sable Pigeon Beartooth Water Licence Renewal
Working Copy of Proposed Changes**

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PART A SCOPE AND DEFINITIONS

1. Scope

- a) This License entitles BHP Billiton Diamonds Inc. to use water, dewater Sable, Pigeon, and Beartooth Lakes for the purpose of mining, to drawdown Two Rock Lake, divert Pigeon Stream around the Pigeon Pit, pipe water from Bearclaw Lake outflow around Beartooth pit, use water from Ursula and Upper Exeter Lake, deposit processed Kimberlite into the Beartooth Pit for the purpose of creating a pit lake, and dispose of waste for industrial undertakings in diamond mining and milling production and associated uses in the Koala, Pigeon and Sable Watersheds, Northwest Territories as shown on Figure 6, 8, & 10 of the Class A Water License and Land Use Permits supporting document, submitted August 21, 2001;
- b) This License is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the *Northwest Territories Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited this License shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations;
- c) The Licensee shall take every reasonable precaution to protect the environment;
and
- d) Compliance with the terms and conditions of this License does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial, **Tlicho** and Municipal legislation.

Add "Tlicho".

2. Definitions

These definitions have been revised to remove any defined terms that do not occur in this licence. The Company also plans to review the document for the use of defined terms and capitalize them where appropriate.

In this License: MV2001 L2-0008

"Act" means *Northwest Territories Waters Act*,

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"Analyst" means an Analyst designated by the Minister under Section 35(1) of the *Northwest Territories Waters Act*;

"Acid/Alkaline Rock Drainage (ARD)" means the production of acidic or alkaline leachate, seepage or drainage from underground workings, ore piles, waste rock, Processed Kimberlite, and overburden that can lead to the release of metals to groundwater and surface water during the life of the mine and after mine closure;

"Amendment" means any change, addition, or deletion to this Water License that is within the original scope of the license;

"Aquatic Effects Monitoring Program (AEMP)" means a monitoring program designed to determine the short- and long-term effects in the water environment resulting from the Project, to evaluate the accuracy of impact predictions, to assess the effectiveness of planned impact mitigation measures and to identify additional impact mitigation measures to reduce or eliminate environmental effects;

Change "water environment" to "Receiving Environment".

"Beartooth Pit" means the developed open pit and underground mine workings for the mining of the Beartooth Kimberlite pipe;

"Board" means the Mackenzie Valley Land and Water Board established under Section 10 of the *Mackenzie Valley Resource Management Act (MVMRA)*;

"Construction" means any activities undertaken to construct or build any components of, or associated with, the development of the Ekati Diamond Mine;

Change wording "development of the Ekati Diamond Mine" to "development of the Sable, Pigeon, Beartooth Project".

"Dam Safety Guidelines" means the Canadian Dam Association's (CDA) Dam Safety Guidelines (DSG), January 1999 or Subsequent approved editions. The scope and applicability of the DSG referred to in this license, is presented in Section 1 of the DSG;

"Dewatering" means removing water from an existing water body by pumping or draining;

Change to: "means the removal of all water from a natural water body."

"Discharge" means the direct or indirect release of any water or waste to the receiving environment;

"Draw Down" means the partial removal of water from any existing water body by pumping or draining;

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Change to match: “means the partial removal of water from a natural water body.”

"Engineering Geologist" means a professional geologist registered with the Association of Professional Engineers, Geologists, and Geophysicists of the Northwest Territories and whose principal field of specialization is the investigation and interpretation of geological conditions for civil engineering purposes;

"Engineered Structures" means any constructed facility, which was designed and approved by a Professional Engineer registered with the Association of Professional Engineers, Geologists, and Geophysicists of the Northwest Territories;

"Freeboard" means the vertical distance between the water line and the effective water containment crest on a dam or dyke's upstream slope;

"Frozen Core" means a permafrost core comprising frozen ice-saturated aggregate material and *functioning* as an impervious seepage barrier to water or Processed Kimberlite;

"Geotechnical Engineer" means a professional engineer registered with the Association of Professional Engineers, Geologists, and Geophysicists of the Northwest Territories and whose principal field of specialization is the design and construction of earthworks in a permafrost environment;

"Ground Ice" means ice that occupies pores and crevices in rock and soil below the ground surface;

"Groundwater" means water that occupies pores and crevices in rock and soil, below the ground surface;

"ICP Metal Scan" means, for the purpose of this License, elements detected in an inductively coupled plasma mass spectrometer including but not limited to aluminum, barium, boron, cadmium, chromium, copper, iron, lead, manganese, molybdenum, nickel, selenium, strontium, uranium and zinc;

"Inspector" means an Inspector designated by the Minister under Section 35(1) of the *Northwest Territories Waters Act*;

"Licensee" means the holder of this License;

"Long Lake Containment Facility" means the processed Kimberlite containment basin(s) and the associated engineering structures that are designed to contain Processed Kimberlite and that are regulated through Water License N7L2-1616;

"Management Plans" means the specific plans required by the Board under Water License MV2001 L2-0008;

"Maximum Average Concentration" means the running average of any four (4) consecutive analytical results submitted to the Board in accordance with the

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sampling and analysis requirements specified in the "Surveillance Network Program";

"Metal Leaching" means the extraction of soluble metal to produce leachate under neutral or alkaline conditions, seepage or drainage from underground workings, pits, ore piles, waste rock, Processed Kimberlite, and overburden that could lead to the release of metals to groundwater and surface water during the life of the mine and after mine closure;

"Mine Plan" means the plan for development of the proposed mine expansion, including the sequencing of the development;

Change the definition to: "means the Life of Mine Plan as updated by the licensee from time to time for sequencing of the development of the Project."

"Mine Development Plans" comprises the area and engineered structures for water use and waste disposal as generally identified in the Land Use Permit and Water License Supporting Document Figures 6, 8, and 10 received with the application dated August 21, 2001;

"Minewater" means groundwater or any water used in mining that is pumped or flows out of any underground workings or open pit;

"Minister" means the Minister of Indian Affairs and Northern Development;

"Modification" means an alteration to a physical structure from the design presented to the Board in the Water License Application and supporting documents;

"Pigeon Pit" means the developed open pit and underground mine workings for the mining of the Pigeon Kimberlite pipe;

"Processed Kimberlite" means material rejected from the process plant after the recoverable minerals have been extracted;

"Professional Engineer" means a Professional Engineer registered with the Association of Professional Engineers, Geologists, and Geophysicists of the Northwest Territories and whose principal field of specialization is appropriate to the work at hand;

"Project" means the Sable, Pigeon and Beartooth Expansion Project;

"Regulations" means Regulations proclaimed pursuant to Section 33 of the *Northwest Territories Waters Act*;

"Receiving Environment" means the environment that is immediately impacted by discharges, this includes both aquatic and terrestrial environment;

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Change definition to: “means, for the purpose of this Licence, the natural aquatic environment that receives any deposit or discharge of waste, seepage or minewater from the project”.

"Sable Pit" means the developed open pit and underground mine workings for the mining of the Sable Kimberlite pipe;

"Sewage" means all toilet wastes and greywater;

"Sewage Disposal Facilities" comprises the engineered structures that are designed to contain and treat sewage at the Main Camp and the sewage collection tank(s) designed to provide containment at the Pigeon and Sable sites;

"Tailings/Processed Kimberlite" means material rejected from the process plant after the recoverable minerals have been extracted;

Remove this definition.

"Toe Berm" means engineered civil works placed around the base of the waste rock piles to minimize seepage from being released to the receiving environment;

"Two Rock Sedimentation Pond" means the containment structure that is designed to contain the minewater from the Sable pit during operation and the turbid water and solids fraction of the lake sediments after lake dewatering and stripping as described in the document titled "Preliminary Design of Water Control Structures for Sable, Pigeon and Beartooth Pit Developments" prepared by EBA Engineering Consultants Ltd., April, 2000;

"Update" means to include the Sable, Pigeon, and Beartooth developments in the management plans;

"Waste" means waste as defined by Section 2 of the *Northwest Territories Waters Act*;

"Waste Treatment Facilities" means *all* facilities designated for *the* treatment and/or disposal of waters or wastes;

"Waste Rock" means all unprocessed rock materials that are produced as a result of mining operations;

"Waste Rock Storage Facilities" means the engineered facilities for the disposal of rock and till;

"Zone of Influence" means an area within which there are positive or negative effects detected;

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PART B GENERAL CONDITIONS

1. The Licensee shall file an Annual Report with the Board no later than March 31st of the year following the calendar year reported which shall contain the following information:

The sections below have been reordered and headings added.

Quantities and Measurements

- a) the monthly and annual quantities in cubic metres of freshwater obtained from Two Rock Sedimentation Pond;
- b) the monthly elevations of water during open water for Two Rock Sedimentation Pond;
- c) the monthly and total quantities in cubic metres of water dewatered from Sable, Pigeon, Two Rock, and Beartooth Lakes;
- d) the monthly, during open water, and *annual* quantities in cubic metres of each waste deposited into the Two Rock Sedimentation Pond;
- e) the monthly and annual quantities in cubic metres of all discharges from the Two Rock Sedimentation Pond;
- f) the monthly and annual quantities in cubic metres of Minewater pumped from the Pigeon, Beartooth, and Sable mines;
- g) the monthly and annual quantities in cubic metres of treated sewage effluent transported to the Sewage Treatment Facilities;
- h) the monthly and annual quantities in cubic metres of recycled water identifying both source and use;
- i) tabular summaries of all data and information generated under the "Surveillance Network Program" in an electronic and printed format acceptable to the Board;
- j) annual reporting of the quantity of waste rock deposited in the Sable, Panda and Pigeon rock piles and materials stockpiled for reclamation purposes;

Management Plans and Activities

- k) a summary of dewatering activities in accordance with Part E, Item 2;
- l) a summary of construction activities and an updated Mine Plan;
- m) a summary of all work carried out under the Waste Management Plans in accordance with Part F, Items 1, 2 and 3 of this License including the results of seepage surveys on ore stockpiles and waste rock dumps and updated results of ongoing ARD and related geochemical test work;

Delete this clause.

- n) a summary of modifications and/or major maintenance work carried out on the Water Supply Facilities, Two Rock Sedimentation Pond, Pigeon Diversion Channel, and associated structures;
- o) the results of the Aquatic Effects Monitoring Program in accordance with Part J of this License;

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Change the first words to “a summary of the results of ...”

- p) any revisions to the approved Contingency Plan;
- q) a summary of all work carried out under the Management Plans in accordance with Part G;

Spills and Unauthorized Discharges

- r) a list and description including volumes of all unauthorized discharges, spills and summaries of follow-up action taken;
- s) an outline of any spill training and communications exercises carried out;

Closure and Reclamation

- t) any revisions to the approved Abandonment and Reclamation Plan;
- u) a summary of any abandonment and reclamation work undertaken during the year and an outline of any work anticipated for the next year. This shall also include an evaluation of the previous year's reclamation work as measured against the reclamation completion criteria specified in Part I Item 1(g) as well as the results of the *monitoring program* specified in Part L Item 1(m), and any adjustments and transactions made in regards to the security deposit;
- v) an updated estimate of the current mine reclamation liability based upon the results of the mine reclamation research, completed reclamation that has been approved by the Land Use Permit Inspector, the mine development monitoring, and any modifications to the Mine Plan;

Other Reporting Requirements

- w) a progress report on any studies requested by the Board that relate to waste management, water use or reclamation and a brief description of any future studies planned by the Licensee; and
- x) any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.

2. Development of the Pigeon and Sable pits should be limited to those activities solely and sequentially required for the construction, mine operation, fish habitat compensation, reclamation and abandonment phases of those sites.
3. The Licensee shall comply with the "Surveillance Network Program" annexed to this License, and any amendment to the said "Surveillance Network Program" as may be made from time to time, pursuant to the conditions of this License.
4. The "Surveillance Network Program" and compliance dates specified in the License may be modified at the discretion of the Board.
5. Meters, devices or other such methods used for measuring the volumes of water used and waste discharged shall be installed, operated and maintained by the Licensee to the satisfaction of an Inspector.

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6. The Licensee shall, within thirty (30) days of the issuance of this License, post the necessary signs, where possible, to identify the stations of the "Surveillance Network Program". All postings shall be located and maintained to the satisfaction of an Inspector.
7. The Licensee shall include a brief executive summary in each of the reports required to be submitted to the Board within this license.
8. The licensee shall ensure a copy of this license is maintained at the site of operation at all times.
9. The Licensee may, at its option, discharge any obligation it may have under this license to prepare, update or modify a report, Management Plan, the Aquatic Effects Monitoring Program, an Annual Report or the Interim Closure and Reclamation Plan by incorporating such plan, report or program, or such update or modification thereto, in the corresponding plan, report or program contemplated by Water License MV2003L2-0013.

Add the above clause.

PART C CONDITIONS APPLYING TO SECURITY REQUIREMENTS

1. Prior to the use of water for industrial undertakings or the disposal of waste and pursuant to Section 17(1) of the Act and Section 12 of the Regulations, the Licensee shall have posted and shall maintain a security deposit according to the following schedule:

- a) *within thirty* (30) days of issuance of *this* License, an amount of fourteen million, four hundred and forty-six thousand (14,446,000) dollars; and
- b) any additional amount as determined by the Board.

Modify the wording to require a 3-part reclamation security, each part being linked to the development schedule for each of the three pits (i.e., Sable security is not required until Sable pit is initiated).

- 2. The security deposit shall be maintained until such time as it is fully or in part refunded by the Minister pursuant to Section 17 of the Act. This clause shall survive the expiry of this License or renewals thereof and until full and final reclamation has been completed to the satisfaction of the Minister. This security deposit shall be in a form acceptable to the Minister and Board.
- 3. Security shall be maintained for the full current liability on the site. If there is a reduction in the total liability, due to progressive reclamation or alteration of the mine development plans, the applicant may apply to the Board for a reduction in the amount of security required.
- 4. The Licensee shall be liable for the costs of abandonment and reclamation and any cost of damages over and above the amount of the security deposit.

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PART D CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain water for road watering and associated uses from Two Rock Sedimentation Pond using the Water Supply Facilities only if the water meets the effluent quality criteria established in this water license, section G.11(d), or as otherwise approved by the Board.
2. The total quantity of water used for all purposes shall not exceed the following:
 - a) 700,000 cubic meters during construction and dewatering phases:

(i) Pigeon Pond	18,500 m ³
(ii) Sable Lake	393,000 m ³
(iii) Beartooth Lake	145,000 m ³
(iv) Two Rock Lake	143,500 m ³
3. The fresh water intake pumps shall be equipped with a screen with a mesh size sufficient to ensure no entrainment of fish, as outlined in Fisheries and Oceans Canada *Freshwater Intake End-of-Pipe Fish Screen Guidelines* and ensuring that these calculations, complete with pump specification are maintained on-site at the pumping location.
4. The water use fee shall be paid annually in advance of any water use.

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PART E CONDITIONS APPLYING TO DEWATERING

1. Upon issuance of this License, the Licensee is authorized to dewater Beartooth, Sable, and Pigeon Pond, construct a sedimentation dam in Two Rock Lake, construct a dyke in Two Rock Lake, construct Bearclaw Dam, divert water from Bearclaw to North Panda stream, and divert Pigeon stream in compliance with the terms and conditions in the License.
2. Prior to the commencement of dewatering or draw-down of any lakes, the Licensee shall submit to the Board for approval, a Dewatering Plan for each lake that shall include, but not be limited to, the following information:
 - a) volume of water to be dewatered from each source;
 - b) the expected quality of water to be discharged to the receiving environment;
 - c) a schedule for dewatering and daily discharge rates;
 - d) pumping methods including locations of intake and outflow structures;
 - e) the design of any erosion protection structures in the discharge areas;
 - f) the description of procedures for visual inspection of any erosion along the affected watercourse;
 - g) the frequency and locations for water quality monitoring as referred to in the "Surveillance Network Program";
 - h) the frequency, location and procedures for monitoring flow rates in the discharge stream;
 - i) the design of the pipeline and related facilities;
 - j) the procedures and rates for dewatering during the winter months to minimize erosion of the downstream watercourses, adjacent shorelines and damage to fish habitat; and
 - k) the identification of any treatment that may be used to ensure that effluent quality criteria are met, in accordance with Part G, Item 11 (d).
3. The Licensee shall implement the Dewatering Plan referred to in Part E, Item 2, as and when approved by the Board.
4. Each water source shall be sampled and analyzed in accordance with the Surveillance Network Program and the results shall be provided to an Inspector for approval prior to commencement of dewatering.
5. The Licensee shall ensure that any waters associated with dewatering or drawdown activities that are to be discharged to the receiving environment, meet the *effluent* quality criteria specified in part G, Item 11 (d).
6. All discharge outflow structures shall be located so as to minimize erosion.
7. During the dewatering of any lake, daily erosion inspections of the discharge points shall be carried out and records of these inspections shall be kept for review upon the request of an Inspector. If any erosion is observed, the Licensee

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shall notify an Inspector, and take the necessary corrective action to mitigate the erosion problem to the satisfaction of the Inspector.

8. The Licensee shall ensure that dewatering rates from pumps do not exceed 2.55 m³/sec during May to July inclusive, and 0.52 m³/sec during the remaining months.

Remove this clause.

9. The Licensee shall submit to the Board and the Inspector, within sixty (60) days of the completion of dewatering or drawdown of any water source, a summary report that shall include, but not be limited to, the following:
- a) the metered daily, monthly, and total discharge rates;
 - b) a description of any water treatment undertaken, erosional problems encountered, and mitigative actions taken;
 - c) the results of water quality monitoring and an evaluation of compliance with the regulated water quality requirements; and
 - d) an evaluation of any impacts to the receiving environment resulting from dewatering activities.

10. A minimum of ninety (90) days prior to any dewatering or drawdown activities in Two Rock Lake, the Licensee shall submit to the Board for approval a comprehensive Operation and Management Plan for the Two Rock Sedimentation Pond. This plan shall include, but not be limited to:

Change “any dewatering or drawdown activities” to “initial drawdown activities”.

- a) description of the design, operational capacity, management, and maintenance of the facility;
 - b) contingencies for managing ground water and pit water flows should they become excessive and threaten to exceed treatment capacity or storage capacity.
11. This plan shall comply with the requirements as described in Part G, Item 8.
12. This plan may be included as an update to the existing Ekati Wastewater and Processed Kimberlite Management Plan.

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PART F CONDITIONS APPLYING TO CONSTRUCTION

1. The Licensee shall submit to the Board, within ninety (90) days of the issuance of this License and a minimum of thirty days prior to commencement of operations, an updated Mine Plan outlining the current schedule for construction and mine development. The Mine Plan will include submission dates of deliverables as required by this License.

2. A minimum of sixty (60) days prior to the start of construction of any dams, dykes, or structures intended to contain, withhold, divert or retain water or wastes, the Licensee shall submit to the Board for approval, design drawings stamped by a Geotechnical Engineer. The drawings are to be accompanied by a Design Report, Construction Plan, Quality Control Plan and construction specifications including material properties. The Licensee shall ensure that such facilities are designed and constructed to engineering standards such that at a minimum they comply with the Dam Safety Guidelines and address the construction and development phases and include the following:

Change 60 days to 30 days.

- a) measures for managing the water quality of Pigeon Stream or Beartooth Stream if they are impacted by construction or operation of the Pigeon diversion channel, or the Beartooth *diversion* pipeline outfall; and
- b) specific threshold limits at which point management action will be undertaken to implement the contingency measures.

Replace (b) with “management actions that will be undertaken to ensure that water entering the Receiving Environment does not exceed the discharge criteria in Part G of this Licence.”

3. The Inspector must receive written notification a minimum of ten (10) days prior to commencement of construction from the Licensee.
4. Construction of designed structures shall not commence until the design drawings referenced in Part F, Item 2 have been approved by the Board. Any changes to the Design or Construction Plan are subject to the Board's approval as outlined in Part H.
5. The Licensee shall ensure that all construction of engineered structures will be field checked by a Geotechnical Engineer in such a manner that the project specifications can be enforced and the Quality Control Plan followed. The Licensee shall also ensure that construction records of all engineered structures are maintained and made available at the request of the Board and Inspector.

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Remove last sentence regarding construction records.

6. The Licensee shall, within ninety (90) days of completion of any such construction, submit to the Board and Inspector, a Geotechnical Engineering Report prepared by a Geotechnical Engineer that shall include as-built drawings, documentation of field decisions that deviate from original plans and any data used to support these decisions.
7. The Licensee shall undertake and submit to the Board, the results of a comprehensive delineation program to identify soil, rock and ground ice conditions prior to the start of construction, along the centreline of all containment structures and diversion channels.
8. A minimum of sixty (60) days prior to the start of construction of the Drainage Control and Collection System the Licensee shall submit to the Board, the Final Detailed Design Report including representative cross sections and drawings of the Drainage Control and Collection System stamped by a Geotechnical Engineer and/or Engineering Geologist.

9. The Licensee shall ensure that all containment and runoff control structures are constructed and maintained to prevent escape of wastes to the surface or ground water systems.

Replace “escape of wastes to the surface or ground water systems” with “any Discharge, except as allowed for in this Licence”.

10. The Licensee shall ensure that all construction of engineered structures are supervised by a Geotechnical Engineer and/or Engineering Geologist. The Licensee shall also ensure that construction records of engineered structures are maintained and made available at the request of the Board and/or Inspector.

Remove last sentence regarding construction records.

11. The Licensee shall within ninety (90) days of completion of any structure designed to contain, withhold, divert or retain waters or wastes, submit to the Board and Inspector, a Geotechnical Engineering Report prepared by a Geotechnical Engineer and/or Engineering Geologist that shall include as-built drawings, documentation of field decisions that deviate from original plans and any data used to support these decisions.

12. A minimum of ninety (90) days prior to the start of construction of the Pigeon Stream Diversion the Licensee shall submit to the Board and Inspector, for approval, stamped engineering drawings for the Pigeon Stream Diversion which shall include the necessary design requirements to allow the continued passage of fish to the upper watershed, and provide fish habitat including spawning, rearing, forage, nursery and migration, both during and after mining of the Pigeon pipe and details of measures proposed to prevent degradation of permafrost and/or ice lenses.

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Change 90 days to 30 days and remove the text “ the necessary design requirements to allow the continued passage of fish to the upper watershed, and provide fish habitat including spawning, rearing, forage, nursery and migration, both during and after mining of the Pigeon pipe and”.

PART G CONDITIONS APPLYING TO WASTE DISPOSAL

1. Wastewater and Processed Kimberlite Management Plan

a) The Licensee shall submit to the Board for approval by January 15, 2003, an updated Wastewater and Processed Kimberlite Management Plan in accordance with the Board's "Guidelines for Tailings Impoundment in the Northwest Territories, February 1987", or subsequent updates, which shall include, but not be limited to, the following:

Change wording "by January 15, 2003" to "within 30 days prior to construction of Pigeon or Sable Pits".

- (i) a comprehensive description of all sources and types of wastewater related to the project which were not provided in the Waste Rock and Ore Storage Management Plan;
- (ii) a description of any proposed physical or chemical treatment of waste prior to discharge to the receiving environment;
- (iii) a description, including maps to scale, of the locations of monitoring stations for ground temperature, water quality, water discharge including the sampling protocols and frequency to be undertaken at each station;
- (iv) an anticipated schedule of volumes of discharge to and from the Two Rock Sedimentation Pond;
- (v) a series of contingencies should Two Rock Sedimentation Pond approach or exceed capacity;
- (vi) any operational and structural modifications, which may impact the Processed Kimberlite Management Plan;
- (vii) measures for ice/water removal from open pit and underground mine and other areas;
- (viii) a description of the acute toxicity testing to be conducted on each source of minewater;
- (ix) measures that will be undertaken to minimize the amount of raw water required for operations, that includes consideration of alternative water sources such as the Two Rock Sedimentation Pond and Pits;
- (x) the projected amount of water to be obtained from Ursula and Upper Exeter Lakes in the upcoming year;
- (xi) an overall monthly water balance for the expansion project, that includes the specific monthly water balances for the Pigeon, Sable, and Beartooth Facilities, and associated waters for both facilities as updated with current information respecting:
 - 1) on-site precipitation, snowmelt, evapotranspiration and runoff;
 - 2) water utilized;
 - 3) surface and subsurface inflows to the pit;
 - 4) realized capacity of the water treatment plants;
 - 5) results and interpretation of hydrogeological test work conducted and its implications for potential ground water Inflows and average water balances; and,

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6) stage volume curves that shows the expected capacity of Two Rock Sedimentation Pond.

2. Acid/Alkaline Rock Drainage (ARD) and Geochemical Characterization Program

a) The Licensee shall submit, as a section of the Waste Rock and Ore Storage Management Plan, to the Board for approval by January 15, 2003, an Acid/Alkaline Rock Drainage (ARD) and Geochemical Characterization Plan for managing non-neutral drainage and metal leaching. The Plan shall be in accordance with the Department of Indian Affairs and Northern Development's (DIAND) "Guidelines for Acid Rock Drainage Prediction in the North, September 1992" or subsequent updates and shall include, but not be limited to, the following:

Change wording "by January 15, 2003 an" to "within 30 days prior to construction of Pigeon or Sable Pits an update to the..."

- (i) characterization of the rock types, geology and mineralogy of the rock units for each mine component including each pit or pipe or mine workings, the quantity of rock, waste or sludge, or the surface area exposure in pit walls;
- (ii) representative sampling and testing of each rock unit;
- (iii) assessment of potential for acidic or alkaline drainage and for metal leaching from ore (stockpiles), waste rock and pit wall rock both during operation and after closure;
- (iv) description of predicted loadings and/or impact on receiving water chemistry from each source, incorporating the results of seepage surveys where available;
- (v) geochemical characterization of material to be used for reclamation and construction;
- (vi) Conceptual Management Plans and the results of testing necessary to evaluate or demonstrate these management plans; and,
- (vii) an explanation that the geochemical sampling undertaken is representative of the rock to be excavated.

3. Waste Rock and Ore Storage Management Plan

a) The Licensee shall submit to the Board for approval, a minimum of ninety (90) days prior to scheduled commencement of construction, a Waste Rock and Ore Storage Management Plan to address the management of all drainage from ore and waste rock storage areas to be constructed, both permanent and temporary, over the term of the License. This Plan shall include, but not be limited to the following:

Change 90 days to 30 days and insert the following text after the word "construction" "of either Pigeon or Sable Pits, an updated"

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- (i) a schedule of estimated ore stockpiling, non-hazardous solid waste generation, coarse processed kimberlite and waste rock production by rock type, tonnage, and destination over the term of the License;
 - (ii) a complete description of the operational procedures for depositing waste rock in the storage areas;
 - (iii) a complete description, including site maps to scale, of each proposed ore and waste rock storage facility or area, and Geochemical Monitoring Programs for waste rock in the pit;
 - (iv) an identification of all potential sources of mine drainage from each storage site and the distance to the downstream receiving environment;
 - (v) detailed proposals for management of any detected flows, including water quality monitoring, collection, treatment, re-routing and final disposal in the event flow is encountered;
 - (vi) detailed Dump Construction Plans and drainage management for waste rock types that may be identified as problematic through ARD testing, including Contingency Plans for controlling runoff and seepage water chemistry;
 - (vii) temperature analysis of all waste rock storage areas having ARD or metal leaching potential to include the effect of oxidation reactions on predicted ARD generation rates; and
 - (viii) a description of the geochemical criteria for the management and placement of potentially ARD Waste Rock and Hydrocarbon contaminated materials within the Waste Rock Dumps. This shall include a plan describing the process for the segregation of the various rock types.
- b) During the term of the License, the Licensee shall conduct seepage surveys of all constructed stockpiles or dumps on the following basis:
- (i) sampling of detected seepages twice per year; once during early summer, and again in late summer or fall;
 - (ii) testing in the field shall include measurements of volume and rate of flow, *field* pH and conductivity;
 - (iii) laboratory analysis of each sample shall include major ions, Total Suspended Solids (TSS), ammonia and dissolved metals by inductively coupled plasma (ICP) mass spectrometry (see Surveillance Network Program (SNP)); and
 - (iv) results should be reported to the Board within sixty (60) days of each survey. The report should also include site plans indicating the locations of seepages and the Quality Assurance/Quality control (QA/QC) protocols used. An Interpretive Report shall be submitted to the Board and Inspector by March 31, annually.

4. Prior to the start of construction of the Waste Rock Storage Facility, the Licensee shall submit to the Board, the Final Detailed Design Report stamped by a Geotechnical Engineer and/or Engineering Geologist. This plan shall include geothermal and short-term stability analyses, and be developed in accordance with the Waste Rock Management Plan as described in Part G, Item 3.

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Change line 1: “the Waste Rock Storage Facility” to “a Waste Rock Storage Facility”.

5. If the Plans referred to in Part G, Items 1, 2 and 3, are not approved by the Board, the Licensee shall revise the Plans and re-submit them to the Board for approval within three (3) months of receiving notification of the Board's decision.
6. The Licensee shall implement the Plans referred to in Part G, Items 1,2 and 3, as and when, approved by the Board.
7. The Licensee shall review the Plans annually and modify as necessary, or as requested by the Board, to reflect changes in operation and technology. Any proposed modifications shall be submitted to the Board for approval a minimum of sixty (60) days prior to requiring approval.
8. Two Rock Sedimentation Pond
 - a) The Licensee shall construct, operate and maintain Two Rock Sedimentation Pond as per the plan outlined in Part E, Item 11 to engineering standards such that:
 - (i) a minimum freeboard limit of 1.0 metre shall be maintained at all times or as recommended by a Geotechnical Engineer and as approved by the Board;
 - (ii) seepage from the Two Rock Lake Outlet Dam is minimized at all times;
 - (iii) any seepage that occurs and does not meet effluent quality requirements as specified in Part G, Item 11 (d) shall be collected and immediately returned to the Two Rock Sedimentation Pond;
 - (iv) any constructed facilities that are eroded are repaired immediately; and
 - (v) when not used for reclamation material, the solids fraction of the Sable Lake sediments and the solids fraction of the wastes deposited, shall be permanently contained within the Two Rock Sedimentation Pond;

b) weekly inspections of Two Rock Sedimentation Pond, pipeline(s), and catchment basin(s) shall be carried out and records of these inspections shall be kept for review. The Licensee shall perform more frequent inspections at the request of an Inspector; and

Add underlined words “weekly, when operating, or as approved by the Inspector”.

- c) an inspection of Two Rock Sedimentation Pond shall be carried out annually by a Geotechnical Engineer. The engineer's report shall be submitted to the Board within thirty (30) days of the inspection, including a covering letter from the Licensee outlining an implementation plan to respond to the engineer's recommendations.

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9. The Licensee shall provide at least five (5) days notice to an Inspector prior to commencement of any discharges of effluent to the receiving environment, this includes discharges from the Two Rock Sedimentation pond.
10. The Licensee shall complete annual chronic toxicity tests for all effluent treated with settling agents. Tests shall include the *Ceriodaphnia* bioassay (Biological Test Method: Test of Reproduction and Survival Using the *Cladoceran Ceriodaphnia dubia* EPS1/RM/21 February 1992) and the algal bioassay (Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum* EPS1/RM25 November 1992) to test for chronic toxicity.
11. Effluent Discharge

a) Surface run-off from the waste rock storage areas and ore storage areas, which is not collected in the Processed Kimberlite Containment Area or Two Rock Sedimentation Pond, and that does not meet effluent quality requirements shall be collected and treated so as to meet the effluent quality requirements as identified in Part G, Item 11 (d), prior to discharge. Unless otherwise authorized in writing by the Board.

Add the word Discharge after “run-off”

b) All minewater that does not meet effluent quality requirements shall be directed to the Two Rock Sedimentation Pond, the Processed Kimberlite Containment Area, the processing plant or as otherwise approved by the Board.

Add the word Discharge after “minewater”

c) All water discharged from the Two Rock Sedimentation Pond shall be directed to Horseshoe Lake or as approved by the Board. There are to be no under ice discharges from the Two Rock Sedimentation Pond.

Change “All water discharged” to “All Discharge” and remove second sentence.

d) All discharges by the Licensee, and/or seepage from the waste rock storage areas, Two Rock Sedimentation Pond, ore storage area pile run-off, surface runoff from site facilities, and Lakes to be dewatered shall meet the following effluent quality requirements:

Change clause to read “All Discharges by the Licensee shall meet the following effluent quality requirements:”

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Parameter	Maximum Average Concentration	Maximum Concentration of Any Grab Sample
Total Ammonia	2.0 mg/L	4.0 mg/L
Total Aluminum	1.0 mg/L	2.0 mg/L
Total Arsenic	0.050 mg/L	0.10 mg/L
Total Copper	0.02 mg/L	0.04 mg/L
Total Cadmium	0.0015 mg/L	0.003 mg/L
Total Chromium	0.02 mg/L	0.04 mg/L
Total Lead	0.01 mg/L	0.02 mg/L
Total Zinc	0.01 mg/L	0.02 mg/L
Total Nickel	0.05 mg/L	0.1 mg/L
Nitrite	1.0 mg/L	2.0 mg/L
Total Suspended Solids	15 mg/L	25 mg/L
Turbidity	10 NTU	15 NTU
Total Phosphorus	0.2 mg/L	0.4 mg/l

Replace the EQC Table with the new Tables below:

Parameter	Proposed Maximum Average Concentration	Proposed Maximum Concentration of Any Grab Sample
Total Ammonia	See table	See table
Total Aluminum	1.0 mg/L	2.0 mg/L
Total Arsenic	0.50 mg/L	1.0 mg//L
Total Copper	0.10 mg/L	0.20 mg/L
Total Nickel	0.15 mg/L	0.3 mg/L
Total Suspended Solids	15 mg/L	25 mg/L
Turbidity	None	None
Total Phosphorus	None	None
Chloride	<i>To be determined</i>	<i>To be determined</i>

pH	Total Ammonia Concentration (mg/L)	
	Average¹	Grab²
6.4	6.75	33.7
6.5	6.67	32.6
6.6	6.57	31.3
6.7	6.44	29.8
6.8	6.29	28.1
6.9	6.12	26.2
7.0	5.91	24.1

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7.1	5.67	21.9
7.2	5.39	19.7
7.3	5.08	17.5
7.4	4.73	15.3
7.5	4.36	13.3

¹ The average sample EQC is based on the chronic value in the USEPA (1999) water quality guideline (WQG) for the protection of aquatic life
² The grab sample EQC is based on the acute value in the USEPA (1999) water quality guideline (WQG) for the protection of aquatic life.

Add: “The total ammonia EQC value will be adjusted based on the determination of an initial dilution zone that is being addressed as part of a Board process to determine a chloride EQC.”

Acute Toxicity: The whole undiluted effluent shall be non-acutely toxic as demonstrated by the in both the Rainbow Trout and Daphnia Magna acute toxicity bioassays. (Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout EPS 1/RM/13 December 2000 and Biological Test Method: Acute Lethality Test Using Daphnia spp. EPS 1/RM/11 July 1990).

All discharges to the environment shall have a pH of between 6.0 and 9.0, except surface runoff, which shall have a pH between 5.0 and 9.0.

Replace “All discharges to the environment” with “All Discharge”.

Oil & Grease – 3 mg/L.

Change “Oil & Grease” to “Total Petroleum Hydrocarbons (TPH)”

e) The Licensee shall store all sewage until it is removed to the main site Sewage Disposal Facilities or as otherwise approved by the Board and Inspector.

Remove text “the Board and”.

f) All surface runoff during the construction of any facilities designed to withhold, divert, or retain such runoff up to the end of construction, as per the construction plan, shall meet the following the criteria mentioned in Part H 11(d) except for the following criteria:

Add the underlined word “All surface runoff Discharge during the construction...”.

Parameter	Maximum Average Concentration	Maximum Concentration of Any Grab Sample
TSS	50 mg/L	100 mg/L

Note that phosphorus and others may increase if TSS goes up.

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Remove the above comment.

12. If water from Two Rock Sedimentation Pond does not meet all effluent quality criteria, the Inspector and Board should be notified immediately. The effluent shall be stored in Two Rock Sedimentation Pond until treatment options have been approved by the Board.

Replace “until treatment options have been approved” with “until alternate plans have been approved”.

13. All other discharges to receiving environment shall meet the effluent quality criteria as specified in Part G, Item 11 (d).

14. The annual volumes of minewater and waste discharged shall not exceed 2,308,600 cubic meters during the operation phase:

(i) Pigeon Pit	462,000 m3/yr
(ii) Sable Pit	513,000 m3/yr
(iii) Beartooth Pit	593,000 m3/yr
(iv) Two Rock Sedimentation Pond	740,600 m3/yr

Remove Parts (i), (ii) and (iii) of this clause

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PART H CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written approval from the Board, carry out modifications provided that such modifications are consistent with the terms of this license and the following requirements are met:
 - a) the licensee has notified the Board in writing of such proposed modifications at least forty-five (45) days prior to beginning the modifications;
 - b) such modifications do not place the licensee in contravention of either the license or the Act;
 - c) the Board has not, during the forty-five (45) days following notification of the proposed modifications, informed the licensee that review of the proposal will require more than forty-five (45) days; and
 - d) the Board has not rejected the proposed modifications.
2. Modifications for which all of the conditions referred to in Part H, Item 1, have not been met, may be carried out only with written approval from the Board.
3. The Licensee shall provide to the Board, stamped and signed as-built plans and drawings of the modifications referred to in this License within ninety (90) days of completion of the modifications.

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PART I CONDITIONS APPLYING TO STUDIES

1. The Licensee shall submit to the Board for approval within two (2) years of the issuance of this License the terms of reference for studies to address the potential of converting the mined-out kimberlite pipes into pit lakes. This report shall include the following:
 - a) waste materials characterization;
 - b) site-specific meteorological data;
 - c) physical limnological assessments;
 - d) water balance data;
 - e) hydrological data;
 - f) water quality data;
 - g) potential hydrological impacts on lake water sources and their respective downstream waters, with an examination of contingencies to avoid these impacts; and
 - h) an outline of proposed dates for deliverables.
2. The Licensee shall submit to the Board for approval within three (3) months of issuance of this License, a terms of reference for a tundra soil study. The report should describe the results of field investigations of tundra soil behavior and interactions *with* waste rock run-off and *include* an *outline* of proposed dates for deliverables.
3. The Licensee shall undertake a study to determine what BHP Billiton Diamonds Inc. feels is an appropriate criteria for regulating Chloride levels within the Sable, Pigeon and Beartooth expansion. This report must provide rationale for the levels chosen. The Chloride study is to be submitted for Board approval within eighteen (18) months of this License being issued. Upon approval, Part G, 11 (d) will reflect a parameter for chloride.
4. The Licensee shall implement the studies referred to in Part I, Items 1, 2 and 3, as and when, approved by the Board.

PART J CONDITIONS APPLYING TO CONTINGENCY PLANNING

1. The Licensee shall submit to the Board for approval, within thirty (30) days of issuance of this License, an update to the approved Ekati Spill and General Contingency Plan in accordance with the Board's "Guidelines for Contingency Planning, January 1987," or subsequent editions.

Change text “within thirty (30) days of issuance of this License” to “within thirty (30) days prior to construction of Pigeon or Sable Pits”.

2. If not approved by the Board, the Contingency Plan referred to in Part J, Item 1 shall be revised and resubmitted within thirty (30) days of receiving notification of the Board's decision.
3. The Licensee shall review the Contingency Plan annually and modify the Plan as necessary to reflect changes in operation and technology. Any proposed modifications shall be submitted to the Board for approval.
4. If, during the period of this License, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the licensee shall:
 - a) implement relevant components of the Contingency Plan;
 - b) report the incident immediately via the 24 Hour Spill Reporting Line (867) 920-8130 which is in accordance with the instructions contained in the "Spill Report" form NWT 1752/0593; and
 - c) submit to an Inspector a detailed report on each occurrence not later than thirty (30) days after initially reporting the event.

PART K CONDITIONS APPLYING TO THE AQUATIC EFFECTS MONITORING PROGRAM

1. The Licensee shall submit to the Board for approval, within ninety (90) days of the completion of this License, a report that interprets the existing baseline information and provides a comprehensive, integrated description of the limnology and aquatic ecology of the receiving environment using all baseline data collected.

2. The Licensee shall submit to the Board for approval by March 31, 2003, an update to the Aquatic Effects Monitoring Program (AEMP) to include stations to determine the short- and long-term effects in the water environment resulting from the Project, to test impact predictions and to measure the performance of operations and effectiveness of impact mitigation.

Change wording “by March 31, 2003,” to “by 2012 or 1 year prior to commencement of construction of Pigeon or Sable Pit, whichever is sooner”.

3. The AEMP shall include, but not be limited to, the following:
 - a) clearly identifiable objectives of the Program;
 - b) a description of the area to be monitored including maps showing all sampling and control sites as well as the overall predicted zone of influence of the Project;
 - c) an evaluation of existing baseline data, the identification of additional baseline information required to support an effective AEMP and a description of how the additional data will be collected prior to pit construction;
 - d) a description of the sampling program that will be conducted throughout the term of the License to achieve the objectives of the AEMP including: the variables, sample media, monitoring protocols and Quality Assurance/Quality Control (QA/QC) Procedures.
 - e) statistical design criteria, including a description of sampling frequencies for each parameter that ensures both accurate characterization of short-term variability and the collection of sufficient data to establish long-term trends;
 - f) a description of procedures to analyze and interpret data collected;
 - g) a description of evaluation criteria for the AEMP and approaches to modify and refine the Program;
 - h) a description of how the results of the AEMP will be incorporated in the overall adaptive environmental management strategies employed by the Licensee; and
 - i) The QA/QC Procedures must ensure that any future changes in monitoring protocols will be calibrated to initial monitoring protocols and data sets so that continuity, consistency, validity, and applicability of monitoring results will be maintained. This program shall also explicitly describe the measures that will be taken to identify and address any information deficiencies.

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4. Specifically, the AEMP shall include, but not be limited to, the following elements:

- a) a process for measuring Project-related effects in:
 - (i) water quality;
 - (ii) sediment quality, transport and deposition;
 - (iii) surface and shallow groundwater flow regimes, fish and fish habitat as defined by the *Fisheries Act*, routes and lake recharge rates, retention times and dilution factors;
 - (iv) structure, abundance and productivity of phytoplankton, littoral, periphyton, zooplankton, benthic macroinvertebrates and fish communities; and
 - (v) contaminant levels in fish tissues and indicators of fish health.
- b) procedures to minimize the impacts of the AEMP on fish populations.

c) the establishment of three new appropriate control sites in nearby lake systems to support an evaluation of project impacts. These control sites should be located outside the zone of influence of mining operations, mineral exploration or any other disturbance activities to provide the necessary information on natural background conditions that includes:

Remove the word “three”.

- i) a detailed rationale for site selection, including examination of alternative approaches for establishing the control site(s);
 - ii) an evaluation of the adequacy of baseline data for representing predevelopment conditions at the control site(s); and
 - iii) an appraisal of the adequacy of each site.
- d) the establishment of sufficient monitoring sites within the zone of influence including, but not limited to, sites located at:

(i) Two Rock outlet downstream dam, Horseshoe Lake and outflow, Ulu Lake, Ross lake and outflow, Logan lake and outflow, Pigeon Fay Stream, Fay Lake and Kodiak Lake, Leslie Lake (inlet), Upper and Lower Exeter Lakes, and connecting streams;

Remove “Kodiak Lake, Leslie Lake (inlet)”.

- ii) far field sites, including deeper basins;
 - iii) any additional sites necessary to evaluate the spatial extent of impacts associated with the Project.
- e) a description of the approaches to be used to annually evaluate and adjust the AEMP;
- f) a description of how the results of the AEMP will be incorporated in the overall adaptive environmental management strategies employed by the

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Licensee, and how data will be used to identify the need for additional mitigation strategies to minimize the impacts of the project;

- g) a description of the procedures that will be used to assess the accuracy of the Licensee's impact predictions and to evaluate the effectiveness of their proposed mitigation measures.

- h) an evaluation of the Ekati Mine related cumulative effects on the aquatic environment of Lac de Gras Region;

Change “Ekati mine related cumulative effects” to “project-related effects” and remove “of Lac de Gras Region”.

- i) an evaluation of the contaminant loads associated with dust deposition and the effects that the dust has on the aquatic environments;

- 5. The Licensee shall implement the AEMP as and when approved by the Board.
- 6. If the AEMP is not approved by the Board, the licensee shall resubmit a revised plan within thirty (30) days of notification.
- 7. The Licensee shall file as part of the Annual Report the following information:
 - a) a summary of activities conducted under the AEMP;
 - b) tabular summaries of all data and information generated under the AEMP in an electronic and printed format acceptable to the Board;
 - c) a scientifically defensible interpretation and discussion of the data;
 - d) an assessment of any identified environmental changes relative to baseline conditions that occurred as a result of the Project;
 - e) an evaluation of the overall effectiveness of the AEMP to date;
 - f) recommendations for refining the AEMP to improve its effectiveness as required; and
 - g) every third AEMP annual report shall include, a summary of the significant results of the AEMP from the project inception, term effects of the Project, and of the actual effects of the Project to date, in comparison to the predicted impacts and shall report on all parameters that are monitored.

- 8. The Licensee shall review and update the AEMP annually and submit proposed changes to the program for Board approval by March 31 annually.

Replace “annually” with “every three years” and remove “by March 31 annually”.

PART L CONDITIONS APPLYING TO ABANDONMENT AND RECLAMATION

All references to abandonment should be changed to closure, in this section as well as the rest of the document.

1. The licensee shall submit to the Board for approval within nine (9) months of issuance of this License, an update to the Interim Abandonment and Reclamation Plan in accordance with the Board's "Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories, September 1990", and shall provide the following additional elements to address abandonment and reclamation concerns:
 - a) specific abandonment and reclamation objectives for each mine component, which shall include, but not limited to, the following:
 - (i) open pits;
 - (ii) underground workings;
 - (iii) waste rock storage areas;
 - (iii) water management structures (dams, diversion channels, intake and delivery systems, treatment plants);
 - (v) sedimentation ponds;
 - (vi) borrow pits, ore storage stockpiles, and other disturbed areas;
 - (vii) surface structures (process plant, camps, roads, airstrip);
 - (viii) all petroleum and chemical storage areas;
 - (ix) any other areas potentially contaminated with hazardous materials;
 - (x) any facilities or areas, which may have been affected by development such that potential pollution problems exist;
 - (xi) contingency measures for pit water treatment during closure;
 - (xii) dyke breach locations and sizes; and
 - (xiii) reclamation of aquatic habitat in all areas.
 - b) development of more detailed plans (including existing examples) for the creation of the proposed meromictic lakes, along with alternative closure methods. As well as a description of contingency measures in the event that the restored lake does not maintain a meromictic character as planned, and there is mixing/upwelling of water from the kimberlite/water interface at the bottom that rises up into the upper water column;
 - c) a description of the measures required, or actions to be taken, to achieve the objectives stated in the NWT Guidelines and Part L, Item I a) and b) for each mine component;
 - d) a detailed description, including maps and other visual representations, of the pre-disturbance conditions for each site, accompanied by a detailed description of the final desired landscape, with emphasis on the reclamation of stream banks and surface drainage over the restored units;

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- e) a comprehensive assessment of materials suitability, including geochemical and physical characterization and availability for reclamation needs, with attention to cover materials, including maps where appropriate showing sources and stockpile locations of all borrow materials;
- f) a description of the process to be employed for progressive *reclamation*, plus details of reclamation scheduling and procedures for coordinating reclamation activities with the overall mining sequence and materials balance;
- g) a detailed set of reclamation criteria, or targets for each mine component to determine exactly when any specific liability unit has been successfully reclaimed;
- h) a description of any post-Closure treatment potentially required for drainage water that is *not* acceptable for discharge from any of the *reclaimed mine* components;
- i) a description of proposed means to provide long term maintenance of the water collection system and Pigeon Stream Diversion;
- j) a description of how the potential for post-closure groundwater contamination will be assessed and monitored during the term of the License;
- k) a detailed description of proposed re-vegetation plans. incorporating a description of the manner in which invasive non-indigenous plant species *in* the re-vegetated area will be addressed and how initial vegetation cover will promote successional development on reclaimed landscape units, what the expected progression and time-frame will be, and how it will be compatible with local ecosystem characteristics;
- l) a description of the monitoring program to be employed *in* recording the progress of mining activities as they relate to on-going reclamation needs. The relevant components of the Reclamation Monitoring Program should be designed to generate data in forms suitable for use in the RECLAIM Model or its equivalent. The Licensee shall provide the Board *annually with* an updated estimate of the current mine reclamation liability and the projected maximum liability to closure. Sampling and testing protocols for *determining* the success of reclamation measures undertaken should be documented. The programs shall include, but not be limited to, the following:
 - (i) pitwall geochemistry and potential for acid/alkaline drainage and metal leaching;
 - (ii) water quality trends in pit water, waste rock dump and ore stockpile seepage;
 - (iii) volumes of waste materials produced and stored by type and location, with particular attention to materials requiring measures to mitigate impacts from water that is not acceptable for discharge;
 - (iv) areas, slope angles, and relevant topography of waste rock dumps;

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- (v) methods, timing, and details respecting the placement of rock cover and the development of permafrost in processed kimberlite material as part of processed kimberlite reclamation;
 - (vi) stability of surface drainage channel(s) over reclaimed processed kimberlite; and,
 - (vii) success of applying reclamation research results.
- m) details of closure measures proposed in the event of a premature or temporary shutdown at any time during the term of the License;
- n) an explanation of how aesthetic concerns will play a role in reclamation; and
- o) the qualifications, status and authority of those individuals who will be responsible for, and who will conduct, reclamation activities during the term of the License.
2. The Licensee shall provide the Board within nine (9) months of the issuance of this license, and on March 31, annually, a yearly schedule of proposed progressive reclamation activities, and corresponding yearly expenditures for completed activities. This information should be used to develop yearly and cumulative reclamation credits that can be anticipated.
3. The licensee shall submit a Reclamation Research Plan that includes, but may not be limited to, the following:
- a) an update of reclamation research to date and how the results may affect reclamation planning;
 - b) a timetable of future requirements;
 - c) a description of a process to ensure that the reclamation procedures that might result from the research are ecologically appropriate, viable and achievable;
 - d) a description of how the research will incorporate objectives relating to the reclamation or creation of viable terrestrial and aquatic habitat;
 - e) a description of how metal uptake in re-vegetated plant communities will be monitored;
 - f) a schedule of anticipated reclamation research expenditures on an annual basis; and
 - g) a description of Quality Assurance/Quality Control protocols for conducting research, how research progress will be monitored, and how results may affect the operational reclamation program.
4. The Licensee shall initiate the reclamation research not later than six (6) months after submission of the Abandonment and Reclamation Plan, or as soon as practical thereafter.
5. The Licensee shall revise the Plan(s) referred to in this section as required by the Board in its review of the Plan(s). Revisions to the Plan(s) shall be submitted to the Board for its approval within six (6) months of receiving notification of the Board's requirement for revision.

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6. The Licensee shall implement the Plan(s) as approved by the Board in accordance with the schedules and procedures specified in the Plan(s) and endeavor to carry out progressive reclamation of areas as soon as is reasonably practicable.
7. The Licensee shall review the Abandonment and Reclamation Plan annually, and shall modify the Plan as necessary to reflect changes in operations, technology, and results from reclamation research and other studies. All proposed modifications to the Plan shall be submitted to the Board for approval.
8. Compliance with the Abandonment and Reclamation Plan specified in this License does not limit the legal liability of the Licensee, other than liability arising from provisions of the Act and its Regulations.
9. The Licensee shall submit to the Board for approval by March 31, 2004 a Reclamation Monitoring Program to evaluate the effectiveness of all progressive reclamation and to identify any modifications required to facilitate landscape reclamation.

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SURVEILLANCE NETWORK PROGRAM (SNP)

A. Location and Description of Surveillance Network Stations

<u>Station number</u>	<u>Description</u>
0008-Pi1	Pigeon Pond Dewatering Station. Sampling Required. Site of Compliance. Rationale: To monitor the quality of the water entering the downstream environment. Remove words “Site of Compliance” and change “water entering the downstream environment” to “water leaving Pigeon Pond”.
0008-Pi2	Pigeon Pit Sump. Sampling required. Rationale: To monitor quality of water entering the Long Lake Containment Facility. Remove this station from the SNP.
0008-Pi3	Upstream Reference Site. The outflow from unnamed lake, referenced as W.L. 463.7 on figure 4.1-1 of the February 2002 Response to Information Requests. Sampling required. Rationale: To determine the quality of the water entering the Pigeon Stream.
0008-Pi4	The inflow to Fay Lake. Sampling required. Rationale: To determine the quality of the water entering Fay Lake.
0008-Pi5	Upper Exeter. Sampling required Rationale: To monitor the quality of the water in the Exeter watershed for potential impacts from the Pigeon Development.
0008-Pi6	The outflow of Little Reynolds Pond. Sampling required. Rationale: To monitor water quality of water leaving the Pigeon Waste Rock drainage area and to detect potential contamination from the Waste Rock Storage Areas.
0008-Pi100	Upper Exeter at site of withdrawal for the future filling Pigeon Pit. Future site. Rationale: To monitor the quality of the water entering the Pigeon Pit.
0008-Sa1	Sable Lake Dewatering Station. Sampling Required. Site of Compliance. Rationale: To monitor the quality of the water entering the receiving environment.
0008-Sa2	Sable Pit Sump. Sampling Required.

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Rationale: To monitor quality of water entering the Two Rock Sedimentation Pond Facility.

Remove this station from the SNP.

- 0008-Sa3 Outlet of Two Rock Sedimentation Pond. Sampling required. Site of compliance.
Rationale: To monitor the quality of the effluent leaving Two Rock Sedimentation Pond prior to discharge entering the receiving environment.
- 0008-Sa4 Ulu Lake. Sampling Required.
Rationale: To monitor any impacts of the Waste Rock Storage Piles on Ulu Lake.
- 0008-Sa5 Inflow to Horseshoe Lake from Ulu Lake. Sampling required.
Rationale: To monitor water quality leaving Ulu Lake and entering Horseshoe Lake. To ascertain if the Waste Rock piles are impacting downstream waterbodies.
- 0008-Sa6 Horseshoe Mid-lake Station, to be located 500m north of the inflow of the stream from Two Rock Lake. Sampling Required.
Rationale: To detect impacts due to effluent discharged from Two Rock Lake.
- 0008-Sa7 Lower Exeter Lake. Sampling Required.
Rationale: To monitor the quality of the water in the Exeter watershed for potential impacts from the Sable Development.
- 0008-Sa8 Runoff from Southern Catchment Area. Sampling required. Site of Compliance.
Rationale: To monitor the water quality of surface runoff and seepage leaving the site facility area.
- 0008-Sa100 Ursula Lake at site of withdrawal for the future filling Sable Pit. Future site.
Rationale: To monitor the hydrology of the source of the water entering the Sable Pit.
- 0008-Be1 Beartooth Lake Dewatering. Sampling Required. Site of Compliance.
Rationale: To monitor the quality of the water leaving the Beartooth Lake.

0008-Be2 Beartooth Pit Sump. Sampling required.

Rationale: To determine water quality entering Long Lake Tailings Containment Facility.

Remove this station from the SNP.

- 0008-Be3 North Panda Lake Inflow. Sampling required.
Rationale: To determine the quality of the water entering North Panda Lake.

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- 0008-REF1 Reference station to replace the Vulture site should impacts be detected at that site.
Rationale: With the addition of the Pigeon Pit there is an increased possibility of impacts to the Vulture Reference site, especially due to airborne contaminants. An alternate reference site should be set up, both to replace Vulture should a need arise and to provide greater information for statistical analysis.

B. Sampling and Analysis Requirements

1. Water at Station Number 0008-Pi3, 0008-Pi4, 0008-Pi6, 0008-Be3 shall be sampled annually during periods of open water in July and analysed for the following:

**Add Station Number 0008-Pi5;
Move Station Number 0008-Pi6 to Section B.8 of the Licence; and
Add a second sentence: “Sampling of Stations 0008-Pi3, 0008-Pi4 and 0008-Pi5 to commence with construction of the Pigeon Stream Diversion Channel”.**

pH
ICP Metal Scan
Total Suspended Solids

2. Water at Station Number 0008-Pi4 shall be sampled every two-weeks during periods of flow and analysed for pH and Total Suspended Solids, and sampled monthly and analysed for an ICP Metal Scan.

Add a second sentence: “Sampling of this station to commence with construction of the Pigeon Stream Diversion Channel”.

3. During dewatering, water at Station Numbers 0008-Pi1, 0008-Sa1, 0008-Sa3, and 0008-Bel shall be sampled at the dewatering discharge point of each station:

Remove Station Number 0008-Sa3.

- (i) once prior to commencement of dewatering and analysed for the following:

Major ions ¹	Total Suspended Solids
Field Parameters ²	ICP Metal Scan ³
Nutrients ⁴	

- (ii) daily during dewatering and analysed for the following:

pH	Turbidity
Total Suspended Solids	Conductivity
Temperature	

- (iii) once on the final day of dewatering and analysed for the following:

ICP Metal Scan ³	Major Ions ¹
Total Suspended Solids	Field Parameters ²

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Nutrients⁴

4. Water at Station Numbers 0008-Pi2, 0008-Sa2, and 0008-Be2 shall be sampled daily during discharge; and analysed for the following:

Remove the above clause.

ICP Metal Scan ³	Major Ions ¹
Nutrients ⁴	Total Suspended Solids
Total Dissolved Solids	pH
Temperature	Conductivity

5. Effluent at Station Number 0008-Sa3 shall be sampled daily during periods of discharge and once, one week prior to discharge and concluding on the final day of discharge and analysed for the following:

Change from “daily during periods of discharge” to “weekly during periods of Discharge”.

Nutrients ⁴	ICP Metal Scan ³
Major Ions ¹	Field Paramters ²

6. Water at Station Numbers 0008-Pi3, 0008-Sa5, and 0008-Sa8 shall be sampled once during periods of flow or more frequently at the request of an Inspector and analysed for the following:

Remove this clause

ICP Metal Scan ³	Nutrients ⁴
Major Ions ¹	Field Parameters ²
Total Suspended Solids	

In addition, water at Station Number 0008-Sa8 shall be sampled once every two years and analysed for total hydrocarbons.

7. Effluent at Station Number 0008-Sa3 shall be sampled twice each year at Spring break-up and before freeze-up in the Fall, for the purpose of performing acute toxicity tests using *Rainbow Trout* and *Daphnia magna* (per Environment Canada's Environmental Protection Series Biological Testing Methods). The samples will be provided to an approved Lab. The results will then be forwarded to Environment Canada

8. Water at Station Numbers 0008-Pi5, 0008-Pi6, 0008-Sa4, 0008-Sa6, and 0008-Sa7 shall be sampled once each year after Spring-breakup and before Fall freeze-up and analysed for the following:

**Move Station Number 0008-Pi5 to B.1; and
Add Station Numbers 0008-Pi6, 0008-Sa5 and 0008-Sa8.**

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pH	Total Suspended Solids
ICP Metal Scan ³	Major Ions ¹
Ecological ⁵	Nutrients ⁴

9. The field pH, sample temperature and ambient wind and weather conditions shall be recorded at all locations at the time of sampling.
10. All sampling, sample preservation, and analysis shall be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater" at the time of analysis, or by such other methods approved by an Analyst.
11. All analyses shall be performed in a laboratory approved by an Analyst.
12. The Licensee shall annually review the approved Quality Assurance/Quality Control (*QA/QC*) Plan and modify the Plan as necessary. Proposed modifications shall be submitted to an Analyst for approval.
13. The *QA/QC* Plan referred to in Part B, Items 17 and 18, shall be implemented as approved by an Analyst.

C. Flow and Volume Measurement Requirements

Unless otherwise noted, all flow and volume measurements shall be recorded monthly and recorded in cubic metres.

1. The quantity of water dewatered from Sable Lake, and Beartooth Lake.
2. The lake levels in metres for Ursula and Exeter Lakes, during open water season.

Remove the above clause.

3. The quantity of each waste deposited into the Two Rock Sedimentation Pond.
4. The quantity of effluent discharged from the Two Rock Sedimentation Pond.
5. The quantity of minewater pumped from the Pigeon, Sable and Beartooth Open Pits.
6. The quantity of sewage solids removed from each Sewage collection facility.

Change "removed from each Sewage collection facility" to "delivered to the Sewage Treatment Plant".

D. Other Monitoring Requirements

1. The Licensee shall measure and record the following data:
 - a) precipitation; and

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- b) evaporation, which is calculated from the parameters listed below:
- wind speed at approximately 2.0 metres above the water surface;
 - wind direction;
 - air temperature at approximately 0.75 and 2.0 metres above the water surface;
 - relative humidity at approximately 0.75 and 2.0 metres above the water surface;
 - water temperature at two levels;
 - net solar radiation over the water surface; and
 - water level.
2. The Licensee shall submit to the Board for approval, the location, methods and frequency for measuring and recording the meteorological data identified in Part D, Item 1.
3. The methods and frequency referred to in Part D, Item 1, shall be implemented as and when approved by the Board.
4. The quantity of ore processed shall be measured in tonnes and recorded monthly.
5. The quantity of waste rock and coarse tailings shall be measured in tonnes and recorded monthly and their disposal locations recorded monthly.
6. Air Quality Monitoring, dust fall and winter core sampling programs are to be updated to include the Sable, Pigeon and Beartooth Areas. This update to the plans is to be submitted within three months of the License being issued.

Remove the above clause.

E. Dam and Dyke Monitoring

1. All dams and dykes shall be inspected annually by a qualified Geotechnical Engineer to determine the stability of the structures.

F. Reports

1. The Licensee shall, within thirty (30) days following the month being reported, submit to the Board all data and information, in an electronic and printed format acceptable to the Board, required by the "Surveillance Network Program" including the results of the approved QA/QC Program.

NOTES:

¹Major ions includes the following parameters:

Total Hardness	Total Calcium
Sulphate	Total Magnesium
Chloride	Total Sodium
Total Potassium	Alkalinity
Fluoride	Total Dissolved Solids

²Field parameters include the following measurements:

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Turbidity	Conductivity
Temperature	pH
Dissolved Oxygen (DO)	% DO Saturation

³ICP-MS Metal Scan (Total) shall include at a minimum, the following parameters:

Aluminum	Arsenic*
Beryllium	Boron
Cadmium	Chromium
Cobalt	Copper
Iron	Lead
Manganese	Mercury*
Molybdenum	Nickel
Selenium*	Silver
Strontium	Vanadium
Zinc	

* also to be analysed by Hydride Atomic Absorption

Remove this requirement.

⁴Nutrients include the following parameters:

Total Ammonia	Total Phosphorus
Ortho-Phosphorus	Total Dissolved Phosphorus
Nitrate-Nitrogen	Total Kjeldhal Nitrogen
Reactive Silica	Total Organic Carbon

⁵Ecological Monitoring:

field multiprobe tests at one metre depth intervals for the following parameters:

Temperature (T)	Redox Potential (Eh)
Conductivity	Dissolved Oxygen (DO)
pH	% DO Saturation