



Water Licence MV2011L2-0004	Review Comment	Recommendation
Scope		
<p>Board Staff notes of clarification to reviewers:</p> <ul style="list-style-type: none">Proposed addition of conditions c) and d) to be consistent with other Type A water licencesConditions b) and e) were in Part B of the old licence; propose moving them here to be consistent with other Type A water licences	Agreed	Water Licence term (how many years?) should be specified
<p>a) This Licence entitles De Beers Canada Inc. (the Licensee) to use Water, dewater the underground mine for the purpose of mining, and to dispose of Waste for diamond mining and milling as outlined in the Consolidated Project Description, submitted by the Licensee on November 24, 2003 (shown specifically in Figures 3 and 5) and summarized below.</p> <p>The Licensee may conduct mining, milling, and associated activities at the Snap Lake Diamond Project Site (63°35'30" N, 110°52'00" W) including:</p> <ol style="list-style-type: none">the extraction of Waste Rock and ore from the Snap Lake Diamond Mine;the development and operation of site facilities (including the airstrip);the storage of fuel;the development of the North Pile, including the deposition of Processed Kimberlite;the progressive reclamation of the North Pile;the construction of site roads and laydown areas;the quarrying of materials from specified areas;the construction and maintenance of a winter ice road; and,the use of Water for processing and domestic purposes.		
<p>b) This Licence 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 deposit of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the <i>Northwest Territories Waters Act</i> 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 Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations.</p>		

c) The licensee shall take every reasonable precaution to protect the environment;		
d) In conducting its activities under this Licence, the Licensee shall make best efforts to consider and incorporate any scientific and Traditional Knowledge that is made available to the Licensee;		
e) Compliance with the terms and conditions of this Licence does not relieve the Licensee from responsibility from compliance with the requirements of all applicable, federal, territorial and municipal legislation.		
Definitions:		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> Definitions not used in licence have been deleted Proposed changes to some definitions to be consistent with other Type A water licences Proposed new definitions as necessary 	Definitions of Water Quality Objectives (WQOs) and Effluent Quality Criteria (EQCs) are missing. They are used in Schedule 5 and Surveillance Network Program	Add WQOs and EQCs into the Definitions List
"Act " means the <i>Northwest Territories Waters Act</i> .		
"Acid Rock Drainage (ARD)" means the production of acidic leachate, Seepage or drainage from underground workings, ore piles, Waste Rock, Processed Kimberlite, or overburden that can lead to the release of metals to groundwater or surface water during the life of the Project and after closure.		
"Action Level" : A predetermined level of change to a monitored parameter that, if reached or exceeded, requires the Licensee to take appropriate actions including, but not limited to, further investigations, changes to operations, or enhanced mitigation measures.		
"Annual Loading" means total mass of a contaminant that is discharged to Snap Lake during a calendar year.		
"Aquatic Effects Monitoring Program" means a monitoring program designed to determine the short- and long-term effects in the Receiving Environment resulting from the Project; to evaluate the accuracy of impact predictions; to assess the effectiveness of planned impact Mitigation Measures; to identify additional impact Mitigation Measures to reduce or eliminate environmental effects; and as further described in PART G Item 1.		
"Average Annual Loading" means the sum of annual loads divided by the number of years for which annual loads are calculated.		
"Board" means the Mackenzie Valley Land and Water Board established under Part 4, Item 99 of the <i>Mackenzie Valley Resource Management Act</i> .		
"Construction" means any activities undertaken to construct or build any component of, or associated with, the Project.		
"Coarse Processed Kimberlite" means the material, generally 1.5 mm to 6 mm in diameter, rejected from the process plant after the recoverable diamonds have been extracted.		
"Dam Safety Guidelines" means the <i>Canadian Dam Association's (CDA) Dam Safety Guidelines (DSG), 2007</i> or subsequently approved editions. The scope and applicability of the <i>Dam Safety Guidelines</i> referred to in this Licence, is presented in Section 1 of the <i>Dam Safety Guidelines</i> .		
"Discharge" means the direct or indirect release of any Water or Waste to the Receiving Environment.		
"Domestic Waste" means all solid Waste generated from the accommodations, kitchen		

facilities, and all other site facilities, excluding Processed Kimberlite and Waste Rock.		
" Engineered Structures " means any facility which was designed and approved by a Professional Engineer.		
" Environmental Assessment " means, for the purpose of this Licence, the totality of the Mackenzie Valley Environmental Impact Review Board Public Registry as established under the authority of Part 5 of the <i>Mackenzie Valley Resource Management Act</i> for this Licence application. This includes everything that was submitted by De Beers Canada Mining Inc. to the Mackenzie Valley Environmental Impact Review Board, the scope of which is consistent with the Water Licence application.		
" Fine Processed Kimberlite " means the material, generally <0.125 mm in diameter, rejected from the process plant after the recoverable diamonds have been extracted. " Grits Processed Kimberlite " means the material, generally between 0.125 mm and 1.5 mm in diameter, rejected from the process plant after the recoverable diamonds have been extracted.		
" Groundwater " means all Water below the ground surface.		
" Inspector " means a person designated by the Minister under subsection 35(1) of the Act as an Inspector.		
" Licensee " means the holder of this Licence.		
" Major Storm Event " means a one (1) in five (5) year rain storm event.		
" Maximum Concentration of Any Grab Sample " means the concentration of any parameter listed in the Licence that cannot be exceeded in any one (1) grab sample.		
" Metal Leaching " means the production of leachate under neutral or alkaline conditions by Seepage or drainage from underground workings, ore piles, Waste Rock, tailings, or overburden, in either disturbed or undisturbed conditions, that could lead to the release of metals to groundwater and surface water during the life of the Snap Lake Diamond Project and after closure.		
" Mine Plan " refers to the document that describes actual underground mining activities of drilling and blasting, Waste Rock removal, kimberlite extraction, Groundwater control, and backfilling, including the sequencing of the development.		
" Minewater " means Groundwater or any Water that is pumped or flows out of any underground workings.		
" Minister " means the Minister of Aboriginal Affairs and Northern Development Canada.		
" Modification " in respect of a structure, means a change, other than an expansion, that does not alter the purpose or function of a structure.		
" North Pile " is the North Pile Waste Rock and Processed Kimberlite Storage Facility which is comprised of the containment basins and the engineered structures designed to store and contain the Processed Kimberlite and other waste materials, as identified in the Consolidated Project Description Figure 3: Snap Lake Diamond Project Overall Site Plan (November 24th, 2003).		
" North Pile Facility " includes the North Pile and any other stockpiles of ore or Waste Rock associated with the Project		
" Paste " means a non-segregating, non-bleeding mixture with a high solids content, Water, and possibly cement and/or other additives that is pumped or hauled by truck from the process plant and placed in either the North Pile or underground workings. The solids content may consist of Coarse, Grits, and Fine fractions of Processed Kimberlite.		

" Potentially Acid Generating (PAG) Rock " means any rock that has the capability to produce acidic leachate, Seepage, or drainage.		
" Processed Kimberlite " means the material rejected from the process plant after the recoverable minerals have been extracted.		
" Professional Engineer " means a person who is registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists in accordance with the <i>Engineering and Geoscience Professions Act</i> , S.N.W.T. 2006, c.16, or subsequently approved editions, as a Professional Engineer, and whose principal field of specialization is appropriate to address the components of the project at hand.		
" Project " means the Snap Lake Diamond Project as outlined in the "Snap Lake Diamond Project Environmental Assessment Report" submitted by De Beers Canada Mining Inc. to the Mackenzie Valley Environmental Impact Review Board February 2002, and updated in the "Consolidated Project Description" submitted to the Board on 24 November 2003, comprising an underground mine and surface processing facilities, surface Waste containment, Water collection and treatment facilities, and other infrastructure;		
" Receiving Environment " means both the aquatic and terrestrial environments that receive any Water or Waste released from the Project.		
" Response Framework " is a systematic approach to responding when the results of a monitoring program indicate that an Action Level has been reached.		
" Response Plan "- is a part of the Response Framework that describes the specific actions to be taken by the Licensee in response to reaching or exceeding an Action Level.		
" Seepage " includes any Water or Waste that passes through or escapes from any structure designed to contain, withhold, divert, or retain the Water or Waste.		
" Sewage " includes all toilet Wastes and greywater.		
" Sewage Treatment Plant " means the Engineered Structures that are designed to contain and treat Sewage produced at the Project.		
" Significance Threshold " means a level of environmental change in any monitored parameter which, if reached, would result in significant adverse effects.		
" Slurry " means a mixture of Fine Processed Kimberlite and Water that exhibits liquid-like characteristics and is pumped from the process plant and placed in the North Pile.		
" Surveillance Network Program " means the totality of the sampling requirements detailed in Annex A of this Licence.		
" Traditional Knowledge " A cumulative, collective body of knowledge, experience, and values built up by a group of people through generations of living in close contact with nature. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual, and political change.		
" Unauthorized Discharge " is a release or Discharge of any Water or Waste not authorized under this Licence.		
" Waste " means any substance defined as Waste by section 2 of the Act.		
" Waste Rock " means all rock materials that are produced and unprocessed throughout the life of the Project.		
" Water(s) " means any Waters as defined by section 2 of the Act.		
" Wastewater " means the Water that is generated by site activities or originates on site that requires treatment or any other water management activity.		

" Water Licence Application " for the purpose of this Licence includes the totality of the MVLWB and MVEIRB Public Registries as established as a result of the filing of the application dated February 2, 2001 and the renewal application filed June 8, 2011.		
" Water Management Pond " means the impoundment that was used for the disposal of Processed Kimberlite during the exploration phase but during operations is being used for temporary storage of Water and Waste and as a contingency Water storage area for the Water Treatment Plant effluent.		
" Water Supply Facilities " means the Engineered Structures that are required for extraction, storage, treatment, and distribution of water as shown in Figure 4 - Snap Lake Diamond Project Overall Site Plan, Consolidated Project Description, 2003.		
" Water Treatment Plant " means the Engineered Structures that are designed to collect and treat Waste Water produced from this Project.		
PART B: GENERAL CONDITIONS		
<p>Board Staff notes of clarification to reviewers:</p> <ul style="list-style-type: none"> • Specific requirements of Annual Report have been placed in Schedule 1 • Any proposed changes to conditions as per recommendations or to be consistent with other Type A water licences • Have proposed deletion of requirement for an Adaptive Management Plan (previously Part B, Item 12 in old licence) – as per recommendations, have proposed incorporating adaptive management directly into the North Pile Management Plan, the Water Management Plan and the Aquatic Effects Monitoring Program 	Adaptive Management Plan was accepted by the MVLWB on August 18, 2011. Response Framework is used in the draft Water Licence to replace the concept of Adaptive Management. However, no reference about the linkage between Adaptive Management Plan and Response Framework is provided in the draft document. Response Framework is applied into Waste Management, North Pile Management, Water Management and AEMP. <u>Is it necessary to require a general Monitoring Response Framework document for the Snap Lake Diamond Project?</u>	It is recommended that the MVLWB provide a term with regards to their relationship for continuity and ensure the Adaptive Management Plan remains effective until the Response Framework documents are available.
1. The Licensee shall ensure that a copy of this Licence is maintained at the site of operation at all times.		
2. All information submitted to the Board for this Licence must be submitted in a form acceptable to the Board.		
3. The water use fee shall be paid by the Licensee annually in advance of any Water use.		
4. The Licensee shall comply with the terms of any plans approved pursuant to the conditions of this Licence and with any amendments to the plans as may be made from time to time pursuant to the conditions of this Licence and as approved by the Board.		
5. The Licensee shall follow plans approved under Licence MV2001L2-0002 unless and until a new or updated plan has been approved by the Board.		
6. All revised management plans and monitoring programs submitted to the Board shall include a brief summary of the changes made to the plan.		
7. The Licensee shall file an Annual Water Licence Report with the Board no later than March 31 of the year following the calendar year reported which shall contain the information in accordance with Schedule 1, Item 1.		

8. The Surveillance Network Program and Schedules annexed to this Licence form an integral part of this Licence.		
9. The Licensee shall comply with the Surveillance Network Program annexed to this Licence, and any amendment to the Surveillance Network Program made from time to time, pursuant to the conditions of this Licence and approved by the Board.		
10. The Licensee shall comply with the Schedules annexed to this licence and with any amendments to the Schedules as may be made from time to time pursuant to the conditions of this Licence and as approved by the Board.		
11. The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be modified at the discretion of the Board.		
12. 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.		
13. The Licensee shall maintain, to the satisfaction of an Inspector, the signs necessary to identify the stations of the Surveillance Network Program.		
PART C: CONDITIONS APPLYING TO SECURITY REQUIREMENTS		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> Specific requirements of security amounts have been placed in Schedule 2 Other changes to wording are proposed as per lessons learned with other Type A water licences 		
1. The Licensee shall post and maintain a security deposit in accordance with Schedule 2, Item 1.		
2. The security deposits required under Part C, Item 1 shall be in a form acceptable to the Minister and shall be maintained until such time as it is fully or partially refunded by the Minister pursuant to Section 17 of the Act.		
3. The Licensee shall upon request from the Board submit an updated security estimate utilizing the current version of RECLAIM or another method acceptable to the Board.		
4. The Licensee shall maintain such further or other security amounts as may be required by the Board based on estimates of current mine reclamation liability in accordance with Part C, Item 3 of this Licence or based on such other information as may be available to the Board.		
5. Reductions to the security deposit may be granted by the Board based on estimates of current mine reclamation liability in accordance with Part C, Item 3 of this Licence or based on such other information as may be available to the Board.		
PART D: CONDITIONS APPLYING TO CONSTRUCTION		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> The term “water containment and runoff control structures” was used inconsistently in the old licence; have proposed changing that term to structures “intended to contain, withhold, divert or retain Water or Wastes” both for clarity and for consistency with other Type A water licences 		

<ul style="list-style-type: none"> Detailed design report requirements have not changed but have been moved to Schedule 3 for clarity other proposed changes to conditions are based on recommendations or to be consistent with other Type A water licences 		
1. The Licensee shall ensure that all Engineered Structures intended to contain, withhold, divert, or retain Water or Wastes are designed, constructed, and maintained to prevent escape of Wastes to the Receiving Environment.		
2. The Licensee shall ensure that Construction records of Engineered Structures are maintained and made available at the request of the Board and/or an Inspector.		
3. The Licensee shall submit to the Board, within thirty (30) days of the issuance of the Licence, an update to the schedule for Construction and mine development.		
4. The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Wastes are designed, Constructed, and maintained to meet or exceed the <i>Dam Safety Guidelines</i> .		
5. The Licensee shall submit to the Board a minimum of ninety (90) days prior to the start of Construction of any phase of the North Pile, the Final Detailed Design Report, Construction drawings and specifications, and a Quality Control Plan stamped by a Professional Engineer. The Final Detailed Design Report shall comply with Schedule 3, Item 1.		
6. The Licensee shall submit to the Board a minimum of ninety (90) days prior to the start of Construction of any structures intended to contain, withhold, divert, or retain Water or Wastes not included in the North Pile system covered by Part D, Item 5; the Final Detailed Design Report, Construction drawings and specifications, and a Quality Control Plan stamped by a Professional Engineer. The Final Detailed Design Report shall comply with Schedule 3, Item 2.		
7. The Licensee may commence Construction of structures in Part D, Items 5 and 6 and other related Engineered Structures provided the following requirements are met: <ul style="list-style-type: none"> a) The Licensee has notified the Board in writing of proposed Construction activities/work at least thirty (30) days prior to the beginning of the activities; b) Such activities do not place the Licensee in contravention of either the Licence or the Act; c) The Board has not, during the thirty (30) days following notification of the proposed Construction activities, informed the Licensee that review of the proposal will require additional time; d) The Board has not rejected the proposed Construction activities; and e) An Inspector's approval has been given. 		
8. Construction of Engineered Structures for which all the conditions in Part D, Item 7 have not been met may be carried out only with written approval from the Board.		

9. The Licensee shall provide written notification to an Inspector a minimum of forty-eight (48) hours prior to the commencement of Construction. This shall include the name and contact information for the Construction superintendent.		
10. The Licensee shall within ninety (90) days of completion of any structures intended to contain, withhold, divert or retain Water or Wastes, submit to the Board, a Geotechnical Engineering Report prepared by a Professional Engineer. This shall include as-built drawings, documentation of field decisions that deviate from the Final Detailed Design report original plans, and any data used to support these decisions.		
11. The Licensee shall ensure that all Construction of Engineered Structures will be supervised and field checked by a Professional Engineer.		
PART E: CONDITIONS APPLYING TO WASTE MANAGEMENT		
<p>Board Staff notes of clarification to reviewers:</p> <ul style="list-style-type: none"> We have proposed rolling the requirements for a Hazardous Materials Plan and a Domestic Waste and Sewage Management Plan, and landfarming of hydrocarbon contaminated soils into a single Waste Management Plan. According to the guidelines, the plan will generally describe how all waste is handled but may reference more specific plans if appropriate (i.e., no need to repeat detailed information available in other documents) Specific requirements for the Geochemical and Geotechnical Inspection Report, the North Pile Management Plan, the ARD and Geochemistry Plan and the seepage surveys has been moved to Schedule 4 other proposed changes to conditions are based on recommendations or to be consistent with other Type A water licences 	Which management plan should contain information related to <u>paste backfilling (to the underground) of processed kimberlite</u> ?	The general backfilling information should be put into Waste Management Plan, and specific information included in the Closure and Reclamation Plan. The reason is that backfilling could be regarded as progressive reclamation program.
<p>1. The Licensee shall submit to the Board for approval by January 31, 2014 a Waste Management Plan in accordance with the Mackenzie Valley Land and Water Board's <i>Guidelines for the Development of a Waste Management Plan</i>, December 2010, or subsequent editions. The plan shall:</p> <ul style="list-style-type: none"> a) Describe how all Waste streams associated with the Project are handled, including references to other plans as necessary; b) Describe in detail the process for handling any Waste stream not specifically described in another management plan including, but not limited to, the hydrocarbon-contaminated soils; and c) Incorporate the Domestic Waste and Sewage Plan as well as the Hazardous Waste Management Plan as previously approved under MV2001L2-0002. 		
2. The Licensee shall submit to the Board for approval updates of the Waste Management Plan at the following times:		

<ul style="list-style-type: none"> a) If the Licensee seeks changes to the plan; b) Every three (3) years following approval of the plan; or c) Upon the request of the Board. 		
<p>3. The Licensee shall ensure that all structures designed to contain, withhold, retain, or divert Water or Waste are inspected annually during the summer months by a Professional Engineer, in accordance with the approved relevant Final Detailed Designs, as-built reports, and management and monitoring plans. The results of the annual inspection shall be reported as follows:</p> <ul style="list-style-type: none"> a) The Engineer's Field Inspection Report shall be submitted to the Board within sixty (60) days of the inspection; it shall include a covering letter from the Licensee outlining an implementation plan for addressing each of the Engineer's recommendations; and b) The Engineer's full Geochemical and Geotechnical Inspection Report shall satisfy the requirements of Schedule 4, Item 1 and be submitted to the Board by March 31 of the year following the inspection . 		
<p>4. The Licensee shall provide written notification to an Inspector a minimum of two (2) weeks prior to the Engineer's annual inspection conducted as per Part E, Item 3.</p>		
<p>5. The Licensee shall maintain all structures designed to contain, withhold, retain, or divert Water or Waste in a manner consistent with the detailed design specifications and as-built reports, so as to prevent the escape of Waste. Weekly inspections of these structures shall be conducted and the records of these inspections shall be kept for review upon the request of the Inspector. The Licensee shall perform more frequent inspections at the request of an Inspector.</p>		
<p>6. The Licensee shall construct, operate, and maintain the North Pile Facility to design specifications such that:</p> <ul style="list-style-type: none"> a) Impacts to the Receiving Environment are prevented or minimized through the use of appropriate mitigation measures, monitoring, and follow-up actions; b) Conditions for eventual closure and reclamation of the facility are optimized; c) Monitoring of the facility is sufficient to ensure that: <ul style="list-style-type: none"> i. performance design criteria, as described in the Final Detailed Design 		

<p>documents described in Part D, Item 5, are being met; and</p> <p>ii. changes in operation of the facility, including any necessary additional mitigations, are identified.</p> <p>d) A Response Framework is in place to ensure that the Licensee will take appropriate actions if Action Levels, as defined in the North Pile Management Plan, are exceeded.</p>		
<p>7. The plan referred to as the Ore Storage, Waste Rock, Processed Kimberlite Management Plan in Part E, Item 3 of Water Licence MV2001L2-0002 (as approved by the Board on February 5, 2010), shall be referred to as the North Pile Management Plan in this Licence.</p>		
<p>8. The Licensee shall submit to the Board, for approval, updates of the North Pile Management Plan at the following times:</p> <p>a) A minimum of ninety (90) days prior to the commencement of the construction of any phase of the North Pile Facility;</p> <p>b) If the Licensee seeks changes in the operation or monitoring of the North Pile;</p> <p>c) Every three (3) years following approval of the plan; or</p> <p>d) Upon the request of the Board.</p> <p>Updates to the North Pile Management Plan shall describe how the Licensee is meeting the objectives listed in Part E, Item 5 of the Licence and satisfy the requirements of Schedule 4, Item 2.</p>	<p>Recent spills within the North Pile footprint warrant an update of the Ore Storage, Waste Rock, Processed Kimberlite Management Plan or a new North Pile Management Plan.</p>	<p>Specify a due date for the submission of the North Pile Management Plan</p>
<p>9. The results of monitoring conducted under the approved North Pile Management Plan in a calendar year shall be reported in the Annual Water Licence Report as per Part B, Item 7 and Schedule 1, Item 1.r.</p>		
<p>10. The Licensee shall perform a risk assessment of the North Pile Facility to evaluate the adequacy of current operational procedures and monitoring efforts to ensure that impacts to the Receiving Environment are prevented or minimized. Results of the risk assessment shall be submitted to the Board by September 15, 2012 accompanied by recommendations for changes to the management of the North Pile Facility and a schedule of implementation.</p>		
<p>11. The Licensee shall submit to the Board, for approval, an update of the Acid Rock Drainage (ARD) and Geochemical Characterization Plan by January 31, 2013. The plan shall describe how the Licensee shall assess and manage potential acid/alkaline rock drainage and metal leaching at the Snap Lake mine site during the construction and</p>		

operation phases. The plan shall satisfy the requirements of Schedule 4, Item 3 and be in accordance with current best practices such as the <i>2009 MEND (Mine Environment Neutral Drainage) Report 1.20.1 Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials</i> – or subsequent updates, and current iterations of the <i>INAP (International Network for Acid Prevention) GARD (Global Acid Rock Drainage) Guide</i> .		
12. The Licensee shall submit to the Board, for approval, updates of the Acid Rock Drainage and Geochemical Characterization Plan at the following times: a) If the Licensee seeks changes to the plan; b) Every three (3) years following approval of the plan; or c) Upon the request of the Board.		
13. The Licensee shall conduct seepage surveys of all Waste storage areas, including the constructed kimberlite ore stockpile, the North Pile Facility and the Water Management Ponds in accordance with Schedule 4, Item 4. Results of the seepage surveys shall be assessed in the context of design predictions and in conjunction with monitoring results for the thermal and hydrological performance of the surveyed areas.		
14. The results of monitoring conducted in a calendar year under the approved ARD and Geochemical Characterization Plan shall be submitted to the Board by March 31 each year. The ARD and Geochemical Characterization Monitoring Report shall contain the results of the seepage surveys required under Part E, Item 13 of this Licence.		
15. If not approved by the Board, the plans in Part E, Items 1, 8, and 11 shall be revised and resubmitted in accordance with directives from the Board.		
16. The Licensee shall operate in accordance with the plans referred to Part E, Items 1, 8, and 11 as and when approved by the Board.		
PART F: CONDITIONS APPLYING TO WATER AND WASTEWATER MANAGEMENT		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> • We have proposed deleting the requirement for a Groundwater Quantity and Quality Monitoring Program as the information contained in that plan already discussed and/or reported elsewhere (i.e., the Water Management Plan, the ARD and Geochemistry Characterization Plan, and the Annual Water Licence Report) • EQC values will be provided in the final licence • Specific requirements for the Water Management Plan have been placed in Schedule 5 • other proposed changes to conditions are based on recommendations or to be consistent with other Type A water licences 		
1. The total quantity of fresh Water drawn from Snap Lake and used by the Snap Lake		

Diamond Project shall not exceed one hundred and eighty-eight thousand (188,000) cubic metres annually.														
2. The Licensee shall install meters for all structures used to withdraw Water or Discharge waters or Waste to the satisfaction of an Inspector.														
3. The Licensee shall construct and maintain the Water intake in accordance with the Department of Fisheries and Ocean's (DFO's) requirements to prevent entrainment of fish. Dimensions should follow DFO's <i>Freshwater Intake End-of-Pipe Fish Screen Guidelines</i> .														
4. The Licensee shall manage Water and Wastewater with the objective of minimizing the impacts of the Project on the quantity and quality of Water in the Receiving Environment through the use of appropriate mitigation measures, monitoring, and follow-up actions.														
<p>5. The Licensee shall submit to the Board for approval an update of the Water Management Plan on October 1, 2013 and at the following times:</p> <p>a) If the Licensee seeks changes to the plan;</p> <p>b) Every three (3) years following approval of the plan; or</p> <p>c) Upon the request of the Board.</p> <p>Updates to the Water Management Plan shall describe how the Licensee is meeting the objectives listed in Part F, Item 4 of this Licence and satisfy the requirements of Schedule 5, Item 1.</p>														
6. The Licensee shall operate in accordance with the plan referred to Part F, Item 5 as and when approved by the Board.														
7. The results of any monitoring performed in a calendar year under the approved Water Management Plan described shall be reported in the Annual Water Licence Report as per Part B, Item 7 and Schedule 1, Item 1.s.														
<p>8. Effluent from the Sewage Treatment Plant shall be tested prior to mixing with the effluent from the Water Treatment Plant at Surveillance Network Program Station Number 02-16 and will meet the following effluent quality requirements:</p> <table border="1" data-bbox="366 1362 1606 1548"> <thead> <tr> <th>Parameter</th><th>Maximum Concentration of any Grab Sample (mg/L)</th><th>Average Monthly Limit (mg/L)</th></tr> </thead> <tbody> <tr> <td>BOD₅</td><td>25</td><td>15</td></tr> <tr> <td>Oil and Grease</td><td>5.0</td><td>3.0</td></tr> <tr> <td>Faecal Coliforms</td><td>20 CFU/100mL</td><td>10</td></tr> </tbody> </table>	Parameter	Maximum Concentration of any Grab Sample (mg/L)	Average Monthly Limit (mg/L)	BOD ₅	25	15	Oil and Grease	5.0	3.0	Faecal Coliforms	20 CFU/100mL	10	It is inconsistency to use SNP 02-16 here and use SNP 02-16i in the Surveillance Network Program (SNP)	Use SNP 02-16i for consistency
Parameter	Maximum Concentration of any Grab Sample (mg/L)	Average Monthly Limit (mg/L)												
BOD ₅	25	15												
Oil and Grease	5.0	3.0												
Faecal Coliforms	20 CFU/100mL	10												
<p>9. Effluent quality criteria requirements:</p> <p>a) All water or Waste from the Project that enters the Receiving Environment, including all Discharges from Surveillance Network Program Station 02-17b, shall meet the following effluent quality criteria:</p>	<p>Both SNP 02-17b and SNP 02-17 are used in the SNP monthly reports.</p> <ul style="list-style-type: none"> • SNP 02-17 for Temporary Water Treatment Plant (WTP) effluent • SNP 02-17b for Permanent WTP effluent 	Use both 02-17b and SNP 02-17 in related terms and/or conditions												

Parameter	Maximum Concentration of any Grab Sample (mg/L)	Average Monthly Limit (mg/L)	Average Annual Loading (kg/yr)	It is inconsistency to use SNP 02-17b here and SNP 02-17 in Item 10 and Surveillance Network Program	The parameters and related values for EQCs should be specified
<p>b) Any water or Waste from the Project that enters the Receiving Environment shall have a pH between 6.0 and 9.0, except surface runoff which shall have a pH between 5.0 and 9.0.</p> <p>c) The monthly average limit for Extractable Petroleum Hydrocarbons shall be 4.6 <u>mg/l</u> for F1 (C6-C10) and 2.1 <u>mg/l</u> for F2 (C11-C16) and the Discharge shall be managed to prevent the appearance of any visible film from the Discharge on the surface of Snap Lake in the vicinity of the outfall.</p> <p>d) The Licensee shall ensure that the effluent discharged to Snap Lake shall not be acutely toxic to aquatic life, using protocols described in the Surveillance Network Program annexed to this Licence.</p>				The unit should be mg/L	Change mg/l to mg/L
10.The pH of the final effluent discharged to Snap lake at SNP station 02-17shall be managed as necessary by the Licensee to prevent acute toxicity of ammonia in the final effluent discharged. Adjustment of the pH shall be made only when necessary to prevent acute ammonia toxicity and shall not result in a pH in the final effluent below the ambient pH of Snap lake at any time					
11.Total phosphorus loads from the Water and Sewage Treatment Plants discharging to Snap Lake must be controlled, as per approved operations plans, such that loads of total phosphorus do not exceed an annual loading of 256 kg per year in any calendar year during the life of the Project.					
12.The Licensee shall direct all Water or Waste from the Project that does not meet the effluent quality criteria specified under Part F, Item 9.a to the Water Treatment Plant or Water Management Pond.					
13.The calculated whole lake average of TDS, (as described in the Surveillance Network Program) at sampling locations comprising Surveillance Network Program Station Number 02-18 shall remain below 350 mg/L at all times.				Is it necessary to have a term about Water Quality Objectives for the consistency with Schedule 5, Item 2, 3, and 4?	Add a term about Water Quality Objectives
14.The Licensee shall submit to the Board for approval a plume characterization study to assess the performance of the outfall diffuser installed in 2011 and the distribution of the diffuser plume in Snap Lake under a variety of conditions (including under ice in late winter).				What is the due date for report submission	Specify a due date
15.The Licensee shall submit for approval by XXXX, 20XX a Strontium Response Plan that satisfies the requirements of Schedule 5, Item 2.				What is the due date for report submission	Specify a due date

16.The Licensee shall submit for approval by XXXX, 20XX a TDS Response Plan that satisfies the requirements of Schedule 5, Item 3.	What is the due date for report submission	Specify a due date
17.The Licensee shall submit for approval by XXXX, 20X a Nitrogen Response Plan that satisfies the requirements of Schedule 5, Item 4.	What is the due date for report submission	Specify a due date
18.If not approved by the Board, the plans referred to in Part F, Items 5, 15, 16, and 17 shall be revised and resubmitted in accordance with directives from the Board.		
19.The Licensee shall implement the plans referred to in Part F, Items 15, 16, and 17 as and when approved by the Board.		
PART G: CONDITIONS APPLYING TO THE AQUATIC EFFECTS MONITORING		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> Specific requirements for the Aquatic Effects Monitoring Program (AEMP), the AEMP Design Plan and the Re-Evaluation Report have been placed in Schedule 6. other proposed changes to conditions are based on recommendations or to be consistent with other Type A water licences 	The AEMP terms and conditions are well organized. The update structure of AEMP design plan and re-evaluation report for approval every 4 years is justifiable, but logically the re-evaluation is ahead of re-design. The requirement of AEMP annual report for approval is an improvement.	Put the AEMP re-evaluation first, before the AEMP design plan
1. The Aquatic Effects Monitoring Program (AEMP) shall meet the following objectives and satisfy the requirements in Schedule 6, Item 1: <ol style="list-style-type: none"> To determine the short- and long-term effects of the Project on the receiving environment; To test the predictions made in the Environmental Assessment or in other submissions to the Board regarding the impacts of the Project on the receiving environment; To assess the efficacy of mitigation measures that are used to minimize the effects of the Project on the Receiving Environment; and To identify the need for additional mitigation measures to reduce or eliminate Project-related effects. 		
2. The Licensee shall implement the Aquatic Effects Monitoring Program as approved under Licence MV2001L2-0002 unless otherwise directed by the Board.		
3. The Licensee shall submit to the Board, <u>for approval, an update to the Aquatic Effects Monitoring Program Design Plan on October 1, 2012 and every four (4) years thereafter</u> . The updated AEMP Design Plan shall satisfy the requirements of Schedule 6, Item 2.		

4. The Licensee shall implement the updated AEMP Design Plan as and when approved by the Board.		
5. The Licensee may at any time propose amendments to the AEMP Design Plan for approval by the Board.		
6. The Licensee shall submit an <u>Aquatic Effects Re-evaluation Report for Board approval by October 1, 2012 and every four (4) years thereafter</u> that meets the following objectives and satisfies the requirements of Schedule 6, Item 3: <ol style="list-style-type: none"> To describe the project-related effects on the receiving environment as measured from project inception and <u>compared against EA predictions</u>; To update predictions of Project-related effects on the receiving environment based on monitoring results obtained since Project inception; and To propose, if necessary, updates to the AEMP design with supporting rationale including, but not limited to, the updated effect predictions. 		
7. <u>The Licensee shall submit to the Board on an annual basis by May 1 for approval</u> an AEMP Annual Report that shall include information relating to data collected in the preceding calendar year and that satisfies the requirements of Schedule 6, Item 4.		
8. <u>If any Action Level as defined in the approved AEMP Design Plan is exceeded, the Licensee shall submit to the Board for approval an AEMP Response Plan by September 1 of the year in which the exceedence is reported.</u> The AEMP Response Plan shall satisfy the requirements of Schedule 6, Item 5.		
9. The Licensee shall implement the AEMP Response Plan as and when approved by the Board.		
10. The Licensee shall update the AEMP Response Plan as directed by the Board.		
11. If not approved by the Board, the plans referred to in Part G, Items 3 and 9 shall be revised and resubmitted in accordance with directives from the Board.		
PART H: CONDITIONS APPLYING TO CONTINGENCY PLANS		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> proposed changes to conditions are based on recommendations or to be consistent with other Type A water licences 		
1. The Licensee shall operate under a Spill Contingency Plan, as approved by the Board, and developed in accordance with the Aboriginal Affairs and Northern		

Development's (AANDC) <i>Guidelines for Spill Contingency Planning, 2007</i> , or subsequent editions.		
2. The Spill Contingency Plan shall be reviewed annually by the Licensee or as requested by the inspector or the Board. Any updates shall be made and a revised plan shall be submitted to the Board for approval. If not approved by the Board, the Spill Contingency Plan shall be revised and resubmitted in accordance with directives from the Board.		
3. The Licensee shall operate under an Emergency Response Plan as approved by the Board.		
4. The Emergency Response Plan shall be reviewed annually by the Licensee or as requested by the Inspector or the Board. Any updates shall be made and a revised plan shall be submitted to the Board for approval. If not approved by the Board, the Emergency Response Plan shall be revised and resubmitted in accordance with directives from the Board.		
5. If, during the period of the Licence, an unauthorized discharge of Waste occurs or if such a discharge is foreseeable, the Licensee shall: <ul style="list-style-type: none"> a) Implement relevant components of the Spill Contingency Plan and the Emergency Response Plan; b) Report the incident immediately via the 24-hour Spill Report Line (867) 920-8130 which is in accordance with the instructions contained in the Spill Report form NWT 1752/0593; and c) Submit a detailed report on each occurrence not later than thirty (30) days after initially reporting the event. 		
PART I: CONDITIONS APPLYING TO CLOSURE AND RECLAMATION		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> • We have proposed that updates to the ICRP shall be in "accordance with directives from the Board" so that the Board may use the CRP guidelines as and when approved in 2012. • other proposed changes to conditions are based on recommendations or to be consistent with other Type A water licences 	The review process of the current Interim Mine Closure and Reclamation Plan does not appear to be over.	Specify a due date for the submission of the Interim Mine Closure and Reclamation Plan
1. The Licensee shall implement the Interim Abandonment and Restoration Plan as approved under Licence MV2001L2-0002. Updates to this Plan (hereafter referred to as the Closure and Reclamation Plan) shall be in accordance with directives from the Board.		

2. The Licensee shall submit to the Board for approval updates of the Closure and Reclamation Plan at the following times: a) Within nine (9) months of issuance of this Licence; b) Every three (3) years from the date of approval; and c) Upon the request of the Board.		
3. An Annual Closure and Reclamation Plan (CRP) Progress Report shall be submitted annually by March 31. If the Progress Report identifies any proposed changes to the CRP or other information identified by the Board, the Progress Report will be submitted for Board approval.		
4. The Licensee shall, a minimum of twenty-four (24) months prior to the end of operations, submit to the board for approval a Final Closure and Reclamation Plan.		
PART J: CONDITIONS APPLYING TO MODIFICATIONS		
Board Staff notes of clarification to reviewers: • changes to conditions are proposed to be consistent with other Type A water licences		
1. The Licensee may carry out Modifications to the Water supply and Waste disposal facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met: a) The Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications; b) The Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require additional time; c) The Board has not rejected the proposed Modifications; and d) An Inspector has authorized the proposed Modifications and provided a letter of notification to the Board.		
2. Modifications for which all the conditions in Part J, 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 as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modifications.		
Schedule's Annexed to the Licence		
SCHEDULE 1 PART B: GENERAL CONDITIONS Annual Water Licence Report Part B, Item 7		
Board Staff notes of clarification to reviewers: • We have proposed reformatting of requirements for clarity and for consistency with other Type A water licences • We have proposed reporting requirements for actions taken under Response Framework for Water Management Plan or North Pile Management Plan • other proposed changes to requirements are based on recommendations or to be	Two more items are identified for annual Water Licence reporting. • During the Public Hearing, De Beers recommended that the key outcomes of Environmental Management System (ISO 14001) audit and management review were included into the Water	Add those two items to Schedule 1, Other Reporting Requirements

consistent with other Type A water licences	<p>Licence Annual Report as a section (page 132-133 of December 13, 2011 Transcript), based on SLEMA comments dated December 6, 2011.</p> <ul style="list-style-type: none"> The Inspector's reports identify some concerns and require follow-up or mitigation. The responses from De Beers should be included into the Water Licence Annual Report. 	
1. The Annual Water Licence Report referred to in Part B, Item 7 shall include, but not be limited to, the following:		
<u>Quantities and Measurements Reporting on Water and Waste</u>		
a. Monthly and annual quantities in cubic metres of Water removed from Snap Lake;		
b. Monthly and annual quantities in cubic metres of all Discharges from the permanent and temporary (if applicable) Water Treatment Plants;		
c. Monthly and annual quantities in cubic metres of treated Sewage effluent from the Sewage Treatment Plant (STP2) and any temporary Sewage Treatment Plant, if applicable;		
d. Monthly and annual quantities in cubic metres of Water pumped into the North Pile Facility including the volume of the liquid fraction of the Slurry and/or Paste;		
e. Monthly and annual quantities in cubic metres of Water reporting to the sumps from the North Pile Facility;		
f. Monthly and annual quantities in cubic metres of Minewater pumped from the Mine to the Water Treatment Plant;		
g. Monthly and annual quantities in cubic metres of Water and Wastewater pumped into and out of the Water Management Pond;		
h. Monthly and annual estimates and measurements of precipitation and runoff;		
i. Monthly elevations of Water in Snap Lake during the open Water season;		
j. Monthly elevations of Water in the Water Management Pond and a stage volume curve for the pond;		
k. The annual quantities in cubic metres of each of Fine, Grits, and Coarse Processed Kimberlite or Paste placed as underground backfill;		
l. The annual quantities in cubic metres of each of Fine, Grits, and Coarse Processed		

Kimberlite or Paste placed in the North Pile Facility;		
m. Annual quantities in cubic metres of Waste Rock placed in the North Pile Facility, identifying the classification of quantities of each rock type (granite or metavolcanic rock);		
n. The annual quantities in cubic metres of other solid Waste placed in the North Pile;		
o. The annual quantities in cubic metres of Waste Rock placed for construction activities, including a diagram showing where it was placed, and identification of the classification of quantities by each rock type (granite or metavolcanic rock);		
p. Tabular summaries of all data and information generated under the Surveillance Network Program including analysis and interpretation and a discussion of any variances from baseline conditions or from previous years' data. This information should be presented in electronic and printed format acceptable to the Board;		
<u>Management Plans and Activities</u>		
q. A summary of Construction activities and an updated Mine Plan;		
r. A summary of all work carried out under the approved North Pile Management Plan (required as per Part E, Item 8) during the previous calendar year including: <ul style="list-style-type: none"> i. a summary of materials deposited to the North Pile Facility including an updated map or diagram showing the location of the deposited materials; ii. a summary and interpretation of monitoring results including any Action Level exceedances; and iii. a description of actions taken in response to any Action Level exceedances under the Response Framework. 		
s. A summary of all work carried out under the approved Water Management Plan (required as per Part F, Item 5) during the previous calendar year including: <ul style="list-style-type: none"> i. a summary of updates or changes to the process or facilities required for the management of Water and Wastewater; ii. a summary and interpretation of monitoring results including any <u>Action Level</u> exceedances; iii. a description of <u>actions taken in response to any Action Level exceedances</u> under the Response Framework; and 		

iv. results from the hydrogeological modeling of the quantity and sources of TDS in Minewater. The model results shall be compared to previous predictions of Minewater discharge, and any changes in input parameters or assumptions shall be clearly described.		
t. A summary of all work carried out under the approved Waste Management Plan;		
u. A summary of any updates or revisions made during the previous calendar year to the Spill Contingency Plans and the Emergency Response Plan;		
v. A summary of all Modification work undertaken during the previous calendar year in accordance with Part J;		
<u>Spills and Unauthorized Discharges</u>		
w. A list and description, including date, spill number, volume, location, and summary of the circumstances and follow-up action taken for all Unauthorized Discharges, in accordance with the reporting requirements in Part H, Item 5;		
x. An outline of any spill training and communications exercises carried out;		
<u>Other Reporting Requirements</u>		
y. A progress report on any studies or plans, including Response Plans, requested by the Board and a brief description of any future studies planned by the Licensee; and		
z. Any other details on Water use or Waste disposal requested by the Board by November 1 of the year being reported.		
SCHEDULE 2 PART C: CONDITIONS APPLYING TO SECURITY REQUIREMENTS Security Requirements Part C Item 1		
Board Staff notes of clarification to reviewers: • Final security amounts will be provided in the final water licence		
1. Pursuant to Section 17 of the Act and Section 12 of the <i>Northwest Territories Waters Regulations</i> , the Licensee shall post security on the schedule set out below and once achieved shall maintain a security deposit totalling \$XX,XXX,XXX.00:		
a. Security currently maintained \$ X,XXX,XXX.00.		Specify the amount
b. Prior to placement of Processed Kimberlite into the West Cell of the North Pile, the Licensee shall have posted and shall maintain an additional security deposit of \$ X,XXX,XXX.00 to address the estimated increase in total Water related liability		Specify the amount

resulting from development of the West Cell.		
SCHEDULE 3 PART D: CONDITIONS APPLYING TO CONSTRUCTION		
<p>1. The Final Detailed Design Report for the North Pile referred to in Part D, Item 5 shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> a) The results of all geotechnical investigation data for the North Pile footprint relevant to the current construction phase, including the results of a comprehensive delineation program to characteristic soil, rock, ground ice, and ground temperature conditions to the depth expected to be affected by the proposed facilities, beneath the footprint of all containment and runoff control structures; b) Seepage analyses; c) Geothermal analyses; d) Stability analyses; e) Detailed instrumentation and monitoring plans; f) Key design and performance parameters; g) <u>Action Levels</u>; and h) Actions to be taken in the event that Action Levels are exceeded. 		
<p>2. The Final Detailed Design Report for structures designed to contain, withhold, retain, or divert Water or Waste, not included in the North Pile system, as referred to in Part D, Item 6 shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> a) Measures for managing all Water seepage and/or discharge to Snap Lake during construction and/or operation of any structures designed to contain, withhold, retain, or divert Water or Waste. b) Specific <u>threshold limits</u> which are to be identified in the General Spill and Spill Contingency Plan to control Discharge to Snap Lake; and c) The results of all geotechnical investigation data, design analyses, key monitoring parameters, and threshold exceedance values, and detailed plans for instrumentation and inspection. 	What is the difference between action levels and threshold limits? Will actions be taken in the event that threshold limits are exceeded?	Clarification is requested. The definition of threshold limits may be needed if necessary.
SCHEDULE 4 PART E: CONDITIONS APPLYING TO WASTE MANAGEMENT		
<p>Board Staff notes of clarification to reviewers:</p> <ul style="list-style-type: none"> • We have proposed changes to the requirements of the North Pile Management Plan as per recommendations • We have clarified that the seepage survey results are to be reported in the ARD and 		

<p>Geochemical Characterization Monitoring report to be consistent with current practice and for clarity</p> <ul style="list-style-type: none"> other proposed changes to requirements are based on recommendations or to be consistent with other Type A water licences 		
<p>1. The Geochemical and Geotechnical Inspection Report referred to Part E, Item 3b shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> a) Documentation of the inspection locations and methodologies; b) The results of the inspection and all problems identified; c) Remedial measures recommended; and d) The status of any remedial measures recommended in the previous year's report with an explanation regarding any recommendations not implemented. 		
<p>2. The North Pile Management Plan referred to Part E, Item 8 shall include, but not be limited to, the following:</p>		
<p>a) Information regarding operation and management:</p>		
<p>i. a summary, with appropriate maps or diagrams, of the North Pile Facility and all the Waste streams that report to it;</p>		
<p>ii. a schedule of estimated ore to be mined, and Processed Kimberlite and Waste rock to be produced, divided by rock type, tonnage, and destination for the duration of the Licence;</p>		
<p>iii. a complete description of the operational procedures and geometric sequencing options for depositing waste rock and Processed Kimberlite in the North Pile for each year of operation of the current licence duration;</p>		
<p>iv. a complete description, including site maps to scale, of the proposed kimberlite ore stockpile area and North Pile area;</p>		
<p>v. a description of the geochemical criteria for management and placement of potentially acid generating Waste Rock including linkages to the ARD and Geochemical Characterization Plan (as per Part E, Item 12);</p>		
<p>vi. a description of operational procedures related to <u>the deposition of paste</u> into the North Pile Facility;</p>		
<p>vii. a description of Water management procedures for the North Pile Facility</p>		

<p>including:</p> <ul style="list-style-type: none"> a. an identification of all potential sources of drainage from each storage site and the distance to the downstream receiving environment; b. a detailed description, including a map or diagram, of the Water control and collections systems related to the North Pile Facility and their predicted performance in terms of flow, capacity, and Water quality parameters; c. A summary of proposed contingency measures for controlling runoff and seepage Water volume, routing, and quality; and d. a summary of any linkages to activities described in the Water Management Plan; 		
<p>viii. any other information required to describe how the North Pile Facility will be managed and operated such that the objectives listed in Part E, Item 6 of the Licence will be met.</p>		
<p>b) Information regarding monitoring including:</p>		
<ul style="list-style-type: none"> i. details and rationale for monitoring of geotechnical stability, thermal characterization, seepage quality and quantity, and run-off for all components of the North Pile Facility including: <ul style="list-style-type: none"> a. monitoring locations, types of instrumentation used, and frequency of monitoring, including a site map to scale; b. predicted performance values based on expected facility design; and c. linkages, if any, to other monitoring requirements in the Licence; 		
<ul style="list-style-type: none"> ii. linkages to other monitoring programs required in the Licence; and 		
<ul style="list-style-type: none"> iii. any other information about the monitoring that will be performed to meet the objectives in Part E, Item 6. 		
<p>c) Information about responses to monitoring results:</p>		
<ul style="list-style-type: none"> i. a description of the Response Framework that will be implemented by the Licensee to link the results of monitoring to those corrective actions necessary to ensure that the objectives listed in Part E, Item 6 are met including: <ul style="list-style-type: none"> a. definitions, with rationale for Action Levels applicable to the performance of 		

<p>the North Pile Facility with respect to geotechnical stability, thermal characteristics, seepage quality and quantity, and run-off; and</p> <p>b. for each Action Level, a description of how exceedances of the Action Level will be assessed and generally which types of actions may be taken if the Action Level is exceeded.</p>		
3. The ARD and Geochemical Characterization Plan referred to in Part E, Item 11 shall include, but not be limited to, the following:		
a) A characterization of all representative rock types, (geology and mineralogy of typical rock units), mined or otherwise used, including the anticipated quantities of each rock type;		
b) An assessment of the potential for acidic or alkaline drainage and for metal leaching from the kimberlite ore stockpile and North Pile both during operation and after closure;		
c) Description of estimated loadings and impact on receiving water chemistry and the internal contaminant loading balance from each source, and description of how results of seepage surveys will be incorporated;		
d) A geochemical characterization of material to be used for construction and reclamation;		
e) A rationale describing how the sampling plan and sampled materials are representative of the materials to be mined or otherwise used; and		
f) A description of the proposed means for preventing, monitoring, and managing ARD and metal leaching including a map or diagram of monitoring locations.		
4. Seepage surveys required as per Part E, Item 13 of the Licence shall be conducted on all Waste storage areas, including the constructed kimberlite ore stockpile, the North Pile storage areas, and the Water Management Pond on the following basis:		
a) Sampling of detected seepages a minimum of twice per year (once during early summer freshet thaw and again in late summer or fall); additional monitoring should be conducted as soon as practicable following Major Storm Events;		
b) Each seepage survey shall include sampling at a reference location in an unaffected area:		
c) The monitoring plan shall include specific thresholds for parameters of concern to trigger additional sampling or other activities;		
d) Testing in the field shall include measurements of field pH, temperature, flow, conductivity, and observations of the physical properties of the seepage;		

e) Laboratory analysis of each sample shall include major ions, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), pH, total metals, and dissolved metals by inductively coupled plasma (ICP) mass spectrometry; and		
f) Results should be assessed in the context of design predictions and in conjunction with monitoring results for the thermal and hydrological performance of the containment and Water management system as part of the ARD and Geochemical Monitoring Report.		
SCHEDULE 5 PART F: CONDITIONS RELATED TO WATER AND WASTEWATER MANAGEMENT		
Board Staff notes of clarification to reviewers: <ul style="list-style-type: none"> proposed changes to requirements are based on recommendations or to be consistent with other Type A water licences 		
1. The Water Management Plan referred to in Part F, Item 5 shall include, but not be limited to, the following information:		
a) Information regarding Water and Wastewater management:		
i. a summary, with appropriate maps or diagrams, of the components of the Water management system and all the Water and Waste Water streams that report to it;		
ii. a description of the process and facilities intended for the purposes of obtaining fresh water from Snap Lake for use at the Snap Lake Diamond Project;		
iii. the process and facilities for the collection and management of surface runoff generated on site;		
iv. the process and facilities for the collection and management of any Wastewater resulting from mining activities;		
v. the process and facilities for the treatment and Discharge of treated effluent from the Snap Lake Diamond Project to Snap Lake;		
vi. details of the final hydraulic design of all Water management structures and Water balance estimates on a monthly basis for each year of the proposed Licence; and		
vii. any other information required to describe how Water and Wastewater will be managed such that the objectives listed in Part F, Item 4 of the Licence will be met.		
b) Information regarding monitoring including:		

i. details of monitoring, including a rationale for each component of the Water management system;		
ii. linkages to other monitoring programs required in the Licence; and		
iii. any other information about the monitoring that will be performed to meet the objectives in Part F, Item 4.		
c) Information about responses to monitoring results:		
i. A description of the Response Framework that will be implemented by the Licensee to link the results of monitoring to those corrective actions necessary to ensure that the objectives listed in Part E, Item 6 are met including:		
a. definitions, with rationale for <u>Action Levels</u> applicable to the performance of the North Pile Facility with respect to geotechnical stability, thermal characteristics, seepage quality and quantity, and run-off;		
b. for each Action Level, a description of how exceedances of the Action Level will be assessed and generally which types of actions may be taken if the Action Level is exceeded.		
2. The Strontium Response Plan referred to in Part F, Item 15 shall include, but not be limited to, the following:		
a) A quantitative description of strontium sources to and forms of strontium in the effluent stream from different mine activities;		
b) A review of potential mitigation and treatment technology to establish the feasibility and costs of reducing strontium loading to Snap Lake from the Project;		
c) Recommendations and supporting rationale for an appropriate Water quality objective for strontium in Snap Lake which is derived from toxicity testing conducted by the Licensee and/or published toxicology studies; and		
d) Recommendations for further actions to be taken in response to increasing levels of strontium in Snap Lake and a timeline for implementation.		
3. The TDS Response Plan referred to in Part F, Item 16 shall include, but not be limited to:		
a) A description of current TDS sources and management including:		

i. an assessment and quantification of sources of TDS loading to Minewater;		
ii. a description of current practices for minimizing Groundwater seepage into the underground;		
iii. a summary of ongoing investigations into improvements to Minewater management that would reduce TDS loadings; and		
iv. any other information necessary to describe issues related to minimizing the TDS loadings to the receiving environment.		
b) A description of the ecological implications of TDS and Chloride loadings to the Receiving Environment including:		
i. recommendations and supporting rationale for an appropriate Water quality objective for TDS and Chloride in Snap Lake derived from toxicity testing conducted by the Licensee and/or published toxicology studies; and		
ii. recommendations and rationale for EQC for TDS and Chloride, to be applied at SNP station 02-17, that would ensure protection of aquatic life in Snap Lake.		
c) A discussion of options for reducing the amount of TDS in the final effluent discharged to Snap Lake by, for example, grouting or otherwise reducing significant flows of connate groundwater or treating some portion of the Minewater. This discussion should include:		
i. options that would allow for the maintenance of the whole lake average of TDS at below 350 mg/L		
ii. options that would achieve the lowest practical effluent quality criteria at the site; and		
iii. for each option, a discussion of technical feasibility, cost/benefit analyses, and any other information necessary to support recommendations made as per d) below.		
d) Recommendations for improvements to Minewater management and monitoring to be implemented through the Water Management Plan and a schedule for implementation.		
4. The Nitrogen Response Plan referred to in Part F, Item 17 shall include, but not be limited to:		
a) A description of current nitrogen (i.e., nitrate and ammonia) sources and management including:		

i. an assessment and quantification of sources of nitrogen loadings to Minewater;		
ii. a description of current practices for minimizing the amount of nitrogen in the Minewater;		
iii. a summary of ongoing investigations into improvements to Minewater and/or explosives management that would reduce nitrogen loadings; and		
iv. any other information necessary to describe issues related to minimizing the nitrogen loadings to the receiving environment.		
b) A description of the ecological implications of nitrogen loadings to the Receiving Environment including:		
i. recommendations and supporting rationale for an appropriate Water quality objectives for ammonia and nitrate in Snap Lake derived from toxicity testing conducted by the Licensee and/or published toxicology studies; and		
ii. recommendations and rationale for revised EQCs for ammonia and nitrate, to be applied at SNP station 02-17, that would ensure protection of aquatic life in Snap Lake.		
c) A discussion of options for reducing the amount of nitrogen in the final effluent discharged to Snap Lake in order to achieve the lowest practical effluent quality criteria at the site; and		
d) Recommendations for improvements to Minewater or explosives management and monitoring to be implemented through the Water Management Plan and a schedule for implementation.		
SCHEDULE 6		
PART G: CONDITIONS APPLYING TO AQUATIC EFFECTS MONITORING		
<p>Board Staff notes of clarification to reviewers:</p> <ul style="list-style-type: none"> We have attempted to clarify the difference between requirements of the AEM Program from what is to be described in the AEM Program Design Plan We have tried to harmonize requirements, where appropriate, to those of the Fisheries Authorization as recommended; note, however, that we have also proposed changes to the requirements of the SNP to better capture some of the recommendations for licence/Fisheries Authorization harmonization other proposed changes to requirements are based on recommendations or to be consistent with other Type A water licences 	<p>During the Technical Session in September 2011, De Beers intended to add monitoring stations downstream of Snap Lake, in addition to KING 01. During the community visit of Lutsel Ke, the community expressed to SLEMA the concern of potential mine impacts on the Lockhart River and East Arm of Great Slave Lake, and expected more monitoring for downstream of the Mine.</p>	<p>Add a term and/or condition for more downstream monitoring</p>

1. Monitoring conducted under the Aquatic Effects Monitoring Program (AEMP) shall include, but not be limited to, the following:		
a) Monitoring for the purpose of measuring Project-related effects on the following components of the Receiving Environment:		
i. water quality;		
ii. sediment quality;		
iii. fish health;		
iv. fish population and community composition using standard methods;		
v. contaminant levels in fish flesh due to changes in water quality in Snap Lake and/or the NE Lake;		
vi. the taste of fish, to be completed with the communities, due to changes in Water quality in Snap Lake;		
vii. The benthic invertebrate community due to changes in water or sediment quality;		
viii. the communities of zooplankton and phytoplankton due to changes in Water quality; and		
ix. changes to fish habitat and its potential consequence to aquatic life in Snap Lake.		
b) Monitoring the following as indicators of nutrient enrichment in Snap Lake:		
i. total phosphorus, dissolved phosphorus and orthophosphate, nitrate, nitrite, ammonia, and Kjeldahl nitrogen; and		
ii. chlorophyll a and algal biomass and species composition of the phytoplankton community.		
c) Monitoring to verify or assess the Environmental Assessment predictions relating to the trophic and dissolved oxygen status of Snap Lake including monitoring of:		
i. dissolved oxygen concentrations in profiles at deep portions (i.e., >8 m) of Snap Lake with monitoring occurring monthly from February through May (i.e., under ice) and in late summer;		
ii. deep water benthic invertebrate community, including abundance, biomass, and		

species diversity;		
iii. concentrations of total phosphorus, orthophosphate, and dissolved phosphorus in connate groundwater and mine effluent on a regular basis and in Snap Lake under ice in March and in early summer;		
iv. Concentration of chlorophyll a in Snap Lake in early summer after the loss of ice cover and in midsummer; and		
v. Algal biomass and species community composition for phytoplankton in Snap Lake in midsummer. The monitoring should include measures of cyanobacteria biomass and species composition and cyanotoxins in the event that algal community compositions shift to favour cyanobacteria.		
d) Procedures to minimize the impacts of the AEMP on fish populations and fish habitat.		
2. The AEMP Design Document referred to in Part G, Item 3 shall include, but not be limited to, the following:		
a) A conceptual site model that describes the pathways of potential effects from the Project to the aquatic ecosystem and their relationships to the ecological characteristics within the receiving environment. The conceptual site model should be based on updated effect predictions and other information from the Aquatic Effects Re-Evaluation Report; it should also clearly define testable hypotheses for the AEMP as well as a justification of assessment and measurement endpoints;		
b) A description of the AEMP sampling and analysis plan required to satisfy the objectives of Part G, Item 1 and incorporate the specific monitoring requirements listed in Schedule 6, Item 1. The sampling and analysis plan shall include:		
i. the variables, sample media, monitoring protocols, and Quality Assurance/Quality Control (QA/QC) procedures;		
ii. statistical design criteria, including a description of sampling frequencies for each parameter that ensure both accurate characterization of short-term variability, the collection of sufficient data to establish long-term trends, and a method to conduct trend analysis;		
iii. a description of procedures to analyze and interpret data collected for each component including a procedure to integrate the results of individual monitoring components such as a weight-of-evidence analysis;		

iv. the QA/QC procedures which will 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;		
v. a complete description of how the Sampling Plan for TDS, Calcium and Chloride, as approved under licence MV2001L2-0002 has been incorporated into the AEMP;		
vi. a description of how relevant SNP monitoring will be incorporated into the AEMP; and		
vii. a description of the area to be monitored including maps showing all sampling and reference locations as well as the overall predicted zone of influence of the Project (i.e., predicted zone of influence of mining operations, mineral exploration, or any other disturbance activities).		
c) A description of the approaches to be used to evaluate and adjust the AEMP;		
d) A summary of how Traditional Knowledge has been collected and incorporated into the AEMP, as well as a summary of how Traditional Knowledge will be incorporated into further studies relating to the AEMP;		
e) A description of an AEMP Response Framework that will link the results of the AEMP to those actions necessary to ensure that Project-related effects on the Receiving Environment remain within an acceptable range. The Response Framework shall include:		
i. definitions, with rationale, for Significance Thresholds and tiered Action Levels applicable to the aquatic Receiving Environment of the Project; and		
ii. for each Action Level: <ul style="list-style-type: none"> a. a description of the rationale including, but not limited to, a consideration of the predictions and conclusions of the Environmental Assessment as well as AEMP results to date; b. a description of how exceedences of Action Levels will be assessed; and c. a general description what types of actions may be taken if an Action Level is exceeded. 		

f) A description of the Annual AEMP Report format;		
g) A plain language description of the program objectives, methodology, and interpretative framework; and		
h) A summary of changes to AEMP design since the last approved design and a rationale for the changes.		
3. The Aquatic Effects Re-evaluation Report referred to in Part G, Item 6 shall include, but not be limited to, the following:		
a) A review and summary of AEMP data collected to date including a description of overall trends in the data and other key findings of the monitoring program;		
b) An analysis that integrates the results of individual monitoring components (e.g., Water quality, sediment, fish health, etc.) to date and describes the overall ecological significance of the results;		
c) A comparison of measured Project-related aquatic effects to predictions made during the Environmental Assessment and an evaluation of any differences and lessons learned;		
d) Updated predictions of Project-related aquatic effects or impacts from the time of writing to the end of mine life based on AEMP results to date and any other relevant operational monitoring data;		
e) A plain language summary of the major results of the above analyses and a plain language interpretation of the significance of those results to local people;		
f) Recommendations, with rationale, for changes to Action Levels;		
g) Recommendations, with rationale, for changes to any aspect of the AEMP Design Document; and		
h) Any other information required to meet the objectives listed in Part G, Item 3 or as requested by the Board.		
4. The AEMP Annual Report referred to in Part G, Item 7 shall include, but not be limited to, the following:		
a) A plain language summary of the major results obtained in the preceding calendar year and a plain language interpretation of the significance of those results to local people;		

b) A summary of activities conducted under the AEMP;		
c) An update of the project development activities and any accidents, malfunctions, or spills within the report time frame that could influence the results of the AEMP;		
d) Tabular summaries of all data and information generated under the AEMP in an electronic and printed format acceptable to the Board;		
e) An interpretation of the results, including an evaluation of any identified environmental effects that occurred as a result of the Project;		
f) An analysis that integrates the results of individual monitoring components collected in a calendar year and describes the ecological significance of the results;		
g) A comparison of monitoring results to Action Levels as set in the AEMP Design Plan;		
h) An evaluation of the overall effectiveness of the AEMP to date;		
i) Recommendations for refining AEMP and the overall Environmental Management System to improve their effectiveness as required; and		
j) Any other information specified in the approved AEMP Design Plan or that may be requested by the Board before November 1 of any year.		
5. The AEMP Response Plan referred to in Part G, Item 8 shall contain the following information for each parameter that has been reported in the AEMP Annual Report to have exceeded an Action Level:		
a) A description of the parameter, its relation to Significance Thresholds and the ecological implication of the exceedence;		
b) A summary of how the exceedence was determined and confirmed;		
c) A description of likely causes of the exceedence and potential mitigation options if appropriate;		
d) A description of actions to be taken by the Licensee in response to the exceedence including:		
i. a justification of the selected action which may include a cost/benefit analysis;		
ii. a description of timelines to implement the proposed actions,		

iii. a projection of the environmental response to the planned actions, if appropriate;		
iv. a monitoring plan for tracking the response to the actions, if appropriate; and		
v. A schedule to report on the effectiveness of actions and to update the Response Plan as required.		
e) Any other information necessary to assess the response to an Action Level exceedence or that has been requested by the Board.		
Surveillance Network Program (SNP) Annexed to the Licence		
The SNP has been attached to this table. Please provide any comments on the attached SNP report in this section.		
<p>Board Staff notes of clarification to reviewers:</p> <ul style="list-style-type: none"> • We have proposed changes to the requirements of sampling at 02-24 to provide harmonization with the Fisheries Authorization as per recommendations • Have proposed clarifications to sampling locations of SNP 02-18 • Have proposed clarification of how to calculate TDS Whole Lake Average (in section D) as per De Beers' response to IRs after the Technical Sessions • other proposed changes to requirements are based on recommendations or to be consistent with other Type A water licences 		Maps for SNP stations are needed for further discussion
<p><u>SNP 02-10</u> SNP 02-10 refers to any other points where observable flow to Snap Lake or Inland Lake 5 (IL5) is observed.</p>	<p>Within the last 14 months there were 8 spills within the North Pile footprint, and more seriously, in two of the events, process water spilled from the East Cell to Snap Lake in October 2011. SLEMA issues a letter and provided recommendations on December 6, 2011. One of the recommendations is as follows:</p> <p><i>“Bog stations between the East Cell and Snap Lake shoreline of the Aquatic Effects Monitoring Program (AEMP)* are important for timely seepage control of the East Cell. It is recommended to enhance field monitoring in these stations and add them into the Surveillance Network Program (SNP). Specific conductivity, pH and turbidity should be measured daily if applicable.”</i></p>	It is recommended again that the MVLWB put these bog stations into the Surveillance Network Program, especially under the umbrella of SNP 02-10.

	<p>* A mistake here. These stations are not part of AEMP, instead, they are Acid Rock Drainage (ARD) and Geochemistry sample locations.</p> <p>Inland Lake 6 (IL6) will be used as a water management sump after the IL6 ditch is built, then one monitoring station between the shoreline and IL6 should be established to detect any possible seepage from IL6 to Snap Lake.</p>	<p>It is recommended that the MVLWB put this station and any other future monitoring stations between the West Cell and shoreline into the Surveillance Network Program, especially under the umbrella of SNP 02-10.</p> <p><u>See attached figure for SNP 02-10 Sub-stations</u></p>
<p><u>TDS Reporting</u></p>	<p>The monitoring program requires quarterly reporting of the whole lake average concentration of TDS at SNP 02-18 and a graph showing trends against the compliance limit (350 mg/L) (Annex Section D, item 1.a). SLEMA agrees with the requirement and believe it is an improvement, as it helps stakeholders understand the water quality change in Snap Lake in a timely manner.</p> <p>However, <u>the annual reporting of TDS forecasting</u> appears to be removed from the draft Water Licence. Current SNP under Water Licence MV2001L2-0002 has that requirement (Annex Section E, Item 2.a.iv).</p>	<p>It is recommended that the MVLWB still maintain that requirement in the new SNP.</p>

SNP 02-10 Sub-stations

<u>For West Cell</u>	<u>For Inland Lake 6</u>	<u>For East Cell</u>
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