

23. All engine driven pumps shall be contained within an impermeable liner/structure that has the capacity to contain 110% of the maximum combined volumetric capacity of the fuel, lubricants and coolants within the engine of the water pump.

#### PART D – EFFLUENT QUALITY STANDARDS

24. No Waste discharged from the wastewater treatment systems at the Main Camp, remote camp and drill site camps shall exceed the following limits:

Parameter	Maximum Concentration in a Grab Sample
pH	6 to 9 pH Units
Oil and Grease	5 mg/L
Fecal Coliform	200 mg/L
CBOD	25 mg/L
Total Suspended Solids	25 mg/L
Residual Chlorine	0.02 mg/L
Un-ionized Ammonia	1.25 mg/L, expressed as (N), @ 15°C ± 1°C
Ammonium <sup>1</sup>	1.38 mg/L
Nitrate <sup>1</sup>	2.9 mg/L
Nitrite <sup>1</sup>	0.06 mg/L

1 Applicable to effluent from the remote camp and drill camps

25. The point of compliance, as described in the application, at the Main Camp for the effluent quality standards included in this licence shall be the final point of control prior to discharging effluent to the environment.

#### PART E – MONITORING AND SAMPLING

26. All data collection and analyses shall be conducted in accordance with the most recent edition of *Standard Methods for the Examination of Water and Wastewater*, prepared and published jointly by the American Waterworks Association and the Water Pollution Control Federation.

##### Main Camp

27. The Licensee shall monitor the exfiltration lagoon and surrounding areas for evidence of water ponding or water reporting to surface prior to water disposal; at the end of the disposal period and approximately one month after the disposal period to confirm that water is infiltrating to ground.
- a) If evidence is found that the thaw bulb capacity has been reached, the Licensee shall not allow discharge of effluent to the exfiltration lagoon unless authorized in writing by a Water Inspection Officer.

28. The Licensee shall sample the effluent in the primary lagoon, as described in the application, bi-annually during the early summer and early fall.

Mobile Camp and Drill Site Camps

29. The Licensee shall sample effluent quality from the mobile camp and drill sites every 2 weeks.
30. The effluent discharge stream shall be monitored to ensure that no effluent migrates within 100 metres of surface waters at any time of year.
31. The Newterra system will be monitored on an on-going basis for pH, dissolved oxygen, FLUX and PERM. If there is a fluctuation in any of the parameters the Licensee shall:
- a) Cease discharge of effluent to ground, and
  - b) Obtain laboratory analytical results showing effluent standards will be met before continuing the discharge of effluent to ground.
32. If laboratory analytical results indicate the effluent does not meet the effluent standards outlined in this licence, the Licensee shall:
- a) Cease discharge of effluent to ground, and
  - b) Obtain laboratory analytical results showing effluent standards will be met before continuing with the discharge of effluent to ground.

Water Acquisition

33. Water depth will be measured and visually monitored when pumping; pumping will cease if depth decreases by ten percent.

**PART F - SITE DECOMMISSIONING AND RESTORATION**

34. As part of the final decommissioning, all disturbed ground surfaces shall be regarded in a manner which is consistent with the topography of the site and which prevents erosion and surface runoff from carrying sediment into any Watercourse.
35. All wastewater treatment infrastructure, equipment, temporary structures and debris shall be removed from the site as part of final decommissioning of the wastewater treatment systems.
36. Subject to any required assessments, authorizations or approvals, the Licensee shall implement the plan required by this section of this licence.
-

# YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type B water licence for a municipal undertaking to:

Northern Cross (Yukon) Limited  
201B – 1191 First Avenue  
Whitehorse YT Y1A 0K5

**APPLICATION NUMBER:** MN12-061-1      **LICENCE NUMBER:** MN12-061

**AMENDMENT:** This licence shall be deemed to be amendment 1 of licence number MN12-061.

**LICENCE TYPE:** B      **UNDERTAKING:** MUNICIPAL

**WATER MANAGEMENT AREA:** 5

**LOCATION:** Eagle River and Glacier Creek, Eagle Plains

**MAP CO-ORDINATES:** Latitude: 66° 20' 53" N Longitude: 136° 51' 33" W

**PURPOSE:** To withdraw and store water, operate and maintain wastewater treatment and disposal systems for a main camp, mobile camps and drill site camps.

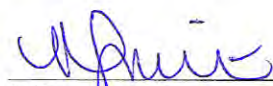
**EFFECTIVE DATE:** The effective date of this licence shall be the date on which the signature of the Chairperson of the Yukon Water Board is affixed.

**EXPIRY DATE:** December 10, 2022

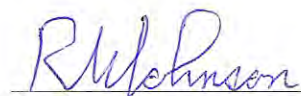
This licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Dated this 15<sup>th</sup> day of

August, 2013.

  
Witness

Approved by:

  
Chairperson  
YUKON WATER BOARD

**PART A – DEFINITIONS**

“Act” means *Waters Act* and any amendments thereto.

“Application” means Water Use Applications MN12-061 and MN12-061-1, including any additional submissions and/or revisions submitted to the Yukon Water Board by the Licensee, up to the date of the Board’s decision.

“Board” means the Yukon Water Board.

“Inspector” means any person designated as an Inspector under the Act.

“Natural Boundary” means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.

“Regulation” means the *Waters Regulation* made under the Act.

“Riparian Zone” means a portion of the stream bank, either vegetated or not, immediately adjacent to the stream channel and is measured from the high water mark on each bank of the watercourse and follows the shape of the channel.

“Sludge Management Plan” means the *Sludge Management Plan* that was submitted as part of the Application and included in Water Use Register MN12-061-1 as exhibit 1.6, and any subsequent revisions.

“Spill Contingency Plan” means the *Eagle Plains Emergency Spill and Response Plan* that was submitted as part of the Application and included in Water Use Register MN12-061-1 as exhibit 1.3, and any subsequent revisions.

“Waste” means any substance as defined in the Act.

“Watercourse” means any stream, lake, pond, river, creek, spring, ravine or swamp whether ordinarily containing water or not.

“Wetted Perimeter” means the horizontal extent of the present water level while the work is taking place.

**PART B - GENERAL CONDITIONS**Other Laws

1. No condition of the water use licence limits applicability of any statutory authority.
2. All construction or installation of works authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

Correspondence

3. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:

- a) To the Licensee, if delivered, faxed or mailed by registered mail to the following address:

Northern Cross (Yukon) Limited  
201B – 1191 First Avenue  
Whitehorse YT Y1A 0K5  
Fax: (867) 456-7815

and shall be deemed to have been given to the Licensee on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

- b) To the Board, if delivered, faxed or mailed by registered mail to the following address:

Yukon Water Board  
Suite 106, 419 Range Road  
Whitehorse YT Y1A 3V1  
Fax: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

- c) The Board or the Licensee may, by notice in writing, change its address for delivery.

Spills and Unauthorized Discharges

4. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the *Yukon Spills Regulations*, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.

5. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.
6. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon *Spills Regulations*. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to the:
  - a) date and time of the spill;
  - b) substance spilt or discharged;
  - c) approximate amount spilt or discharged;
  - d) distance between the spill or discharge and the nearest Watercourse, and
  - e) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.
7. The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report.
8. All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill.
9. The Spill Contingency Plan shall be posted on site for the duration of the works.

#### Non-Compliance

10. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

#### Fuel Storage and Transfer

11. Fuel, lubricants, hydraulic fluids, coolants and similar substances, with the exception with liquid contained within the water pump engine, shall be stored and/or transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.

#### Annual Reports

12. On or before the anniversary of the date of issuance of this licence, and for each year during which this licence is in effect, the Licensee shall submit an annual report to the Board. The report shall include the information required by the Regulation including, but not necessarily limited to:
  - a) description of the water use operations carried out during the year reported;
  - b) the quantity of water withdrawn per day;
  - c) the hours of pumping per day when water is withdrawn;

- d) data collected according to the requirements of Part E of this licence;
- e) details of the methods, procedures and standards used in the collection and sample testing;
- f) detailed record of the operation of the wastewater treatment facilities, including operational difficulties, significant maintenance work and modifications;
- g) the results of any physical inspections of the wastewater treatment facilities as described in Part E of this licence;
- h) the inspection results, including photographs, repairs or plans for modification required by the monitoring program;
- i) details of the sludge monitoring, removal and disposal methods, as described in the Sludge Management Plan;
- j) a detailed record of any major maintenance work carried out or planned to be carried out that could have an impact on water;
- k) summaries of all data generated as a result of the requirements outlined in Part E of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from baseline conditions or from previous years' data, and
- l) any reclamation to the site.

#### Reports

- 13. The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier.
- 14. The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, the WATERLINE. Electronic copies shall be submitted in one of the following formats: Word 97 - 2003, Excel 97 - 2003 workbooks, or Adobe .pdf format. Water quality results uploaded to the WATERLINE must be presented in Excel 97-2003.xls format.

#### Water Sampling Event Reporting

- 15. Within one month of each sampling event the Licensee shall submit a monitoring report to the Board. The report shall include the following information, but not necessarily limited to:
  - a) Final and complete analytical report from an accredited laboratory;
  - b) Comparison of analytical results in tabular format to the effluent quality standards listed in Part E of this licence; and,
  - c) Discussion of any irregularities and corrective action.

**PART C - OPERATING CONDITIONS**Description of Water Use and Deposit of Waste

16. The Licensee is hereby authorized to:
- withdraw and store water from the Eagle River and from Glacier Creek at a combined maximum volume of 20 m<sup>3</sup>/day;
  - collect, store, treat and dispose of municipal wastewater at the main camp, mobile camps and drill site camps;
  - operate and maintain mechanical treatment systems located at the main camp, mobile camps and drill site camps;
  - operate and maintain a wastewater treatment lagoon and exfiltration system at the main camp; and
  - deposit a waste to ground,
- as described in the Application, and subject to the conditions of this licence. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.
17. All works associated with the undertaking shall be maintained in good repair.
18. All equipment on site shall be mechanically sound and free of leaks.

Water Acquisition

19. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes as follows:
- Screens or nets shall have a minimum of 3.5 openings per centimeter and openings no greater than 3.2 millimetres along any given side;
  - If a punch plate or similar material is used, openings shall be no greater than 3.2 millimetres in length or width;
  - There shall be no less than 929 square centimeters of open screen for every 205 litres per minute being withdrawn;
  - The barriers shall be monitored and maintained to ensure that they function effectively at all times when water is being withdrawn;
  - The barriers shall be designed and installed in such a manner that the screen is submerged and a uniform flow is maintained through the total screen area;
  - Water shall not be withdrawn when the barrier is removed for renewal, repair or inspection, and
  - The Licensee shall cease pumping or decanting and take remedial action if there is alteration the Riparian Zone or the bed or bank of the Watercourse resulting from any activity undertaken by the Licensee.
20. The withdrawal of any water shall not exceed ten percent of the instantaneous flow.



21. All engine driven pumps shall be contained within an impermeable liner/structure that has the capacity to contain 110% of the maximum combined volumetric capacity of the fuel, lubricants and coolants within the engine of the water pump.

#### PART D – EFFLUENT QUALITY STANDARDS

22. No Waste discharged from the wastewater treatment systems at the main camp, mobile camp and drill site camps shall exceed the following limits:

Parameter	Maximum Concentration in a Grab Sample
pH	6 to 9 pH Units
Oil and Grease	5 mg/L
Fecal Coliforms	200 CFU/100ml
CBOD	25 mg/L
Total Suspended Solids	25 mg/L
Residual Chlorine	0.02 mg/L
Un-ionized Ammonia	1.25 mg/L, expressed as (N), @ 15°C ± 1°C
Ammonium <sup>1</sup>	1.38 mg/L
Nitrate <sup>1</sup>	2.9 mg/L
Nitrite <sup>1</sup>	0.06 mg/L

<sup>1</sup> Applicable to effluent from the mobile camp and drill camps

23. The point of compliance, as described in the application, at the main camp for the effluent quality standards included in this licence shall be the final point of control prior to discharging effluent to the environment.

#### PART E – MONITORING AND SAMPLING

24. All analyses must be performed by a laboratory accredited under the International Organization for Standardization ISO/IEC 17025: 2005 standard and the accreditation must include the actual tests being performed by the laboratory.
25. Water depth will be measured and visually monitored when pumping; pumping will cease if depth decreases by ten percent.

##### Main Camp

26. The Licensee shall monitor the exfiltration lagoon and surrounding areas for evidence of water ponding or water reporting to surface prior to water disposal; at the end of the disposal period and approximately one month after the disposal period to confirm that water is infiltrating to ground.

- a) If evidence is found that the thaw bulb capacity has been reached, the Licensee shall not allow discharge of effluent to the exfiltration lagoon unless authorized in writing by a Water Inspection Officer.
27. The Licensee shall sample the effluent in the primary lagoon, as described in the application, bi-annually during the early summer and early fall.
28. The Newterra system will be monitored on an on-going basis for pH, dissolved oxygen, FLUX and PERM. If there is a fluctuation in any of the parameters the Licensee shall:
- a) Cease discharge of effluent to ground, and
  - b) Obtain laboratory analytical results showing effluent standards will be met before continuing the discharge of effluent to ground.

#### Mobile Camp and Drill Site Camps

29. The Licensee shall sample effluent quality from the mobile camp and drill sites every 2 weeks.
30. The effluent discharge stream shall be monitored to ensure that no effluent migrates within 100 metres of surface waters at any time of year.

#### **PART F - SITE DECOMMISSIONING AND RESTORATION**

31. As part of the final decommissioning, all disturbed ground surfaces shall be regarded in a manner which is consistent with the topography of the site and which prevents erosion and surface runoff from carrying sediment into any Watercourse.
32. All wastewater treatment infrastructure, equipment, temporary structures and debris shall be removed from the site as part of final decommissioning of the wastewater treatment systems.
-

# YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type A water licence for a municipal undertaking to:

Yukon Government Community Services  
P.O. Box 2703 (C-13)  
Whitehorse, YT Y1A 2C6

**LICENCE NUMBER:** MN15-043

**LICENCE TYPE:** A **UNDERTAKING:** Municipal

**WATER MANAGEMENT AREA:** 02 Yukon

**WATER SOURCE:** Groundwater and Pelly River

**MAXIMUM QUANTITY:** 600 m<sup>3</sup>/day

**LOCATION:** Pelly River at Ross River

**MAP CO-ORDINATES:** Latitude: 61° 58' 47" N Longitude: 132° 29' 09" W

**PURPOSE:** To allow for the construction, operation and maintenance of the Ross River Wastewater Treatment Facility, including waste collection, treatment and disposal.

**EFFECTIVE DATE:** The effective date of this licence shall be the date on which the signature of the Chairperson of the Yukon Water Board is affixed.

**EXPIRY DATE:** December 7, 2041

This licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Approved this 6 day of

January, 2017.

  
\_\_\_\_\_  
Witness

  
\_\_\_\_\_  
Minister, Executive Council Office  
Government of Yukon

Issued this 9 day of

January, 2017.

\_\_\_\_\_  
Witness

  
\_\_\_\_\_  
Chairperson  
Yukon Water Board

**PART A – DEFINITIONS**

“Act” means the *Waters Act* and any amendments thereto.

“Application” means Water Licence Application MN15-043 including any additional submissions and/or revisions submitted to the Yukon Water Board by the Licensee, up to the date of the Board’s decision.

“Board” means the Yukon Water Board.

“Disposal Area” means the discharge field located northwest of the lagoons where treated wastewater will be discharged from the secondary lagoon as described in the Application and included in Register MN15-043 exhibits 1.2, 1.3 and 1.3.6, Figure G10.

“Freshwater Intake End-of-Pipe Fish Screen Guideline” means the most current version of the *Freshwater Intake End-of-Pipe Fish Screen Guideline* issued by Fisheries and Oceans Canada.

“Inspector” means any person designated as an Inspector under the Act.

“Natural Boundary” means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.

“Monitoring and Surveillance Plan” means the *Ross River Waste Water Treatment System Monitoring Plan* that was submitted as part of the Application and included in Register MN15-043 as exhibit 6.1.2, and any subsequent revisions.

“Operations and Maintenance Plan” means the *Operations and Maintenance Guide* that was submitted as part of the Application and included in Register MN15-043 as exhibit 1.3.5, and any subsequent revisions.

“Regulation” means the *Waters Regulation* made under the Act.

“Sampling Stations” means the stations described in Schedule A of this licence.

“Spill Contingency Plan” means the *Spill Prevention and Response Plan* that was submitted as part of the Application and included in Register MN15-043 as exhibit 1.8, and any subsequent revisions.

“Waste” means any substance as defined in the Act.

“Watercourse” means a natural watercourse, body of water or water supply, whether usually containing water or not, and includes groundwater, springs, swamps, and gulches.

“Wetted Perimeter” means the horizontal extent of the present water level while the work is taking place.



## **PART B – WATER USE AND DEPOSIT OF WASTE**

1. The Licensee is hereby authorized to:

- a) obtain water from the Pelly River at a maximum rate of 150 cubic metres per day, up to a maximum total quantity of 4,500 cubic metres, for construction purposes;
- b) obtain water from the Pelly River and the cut-off trench (groundwater) at a maximum rate of 600 cubic metres per day, up to a maximum annual quantity of 6,000 cubic metres, for municipal purposes;
- c) construct, operate, and maintain the wastewater treatment facility, including sludge drying beds;
- d) collect, store and treat sewage in the wastewater treatment facility;
- e) dewater sludge in sludge drying beds; and
- f) discharge treated effluent from the wastewater treatment facility to the Disposal Area from July 15 to September 15 of each year, at a rate not exceeding 283 cubic metres per day or a total of 17,000 cubic metres per year,

as described in the Application, and subject to the conditions of this licence. For clarity, the maximum combined rate of 1a) and 1b) authorized is 600 cubic metres per day. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.

## **PART C – DESIGN AND CONSTRUCTION**

### Design

2. Ten (10) days prior to the commencement of construction, the Licensee shall submit to the Board final detailed design construction drawings and specifications of the wastewater treatment facility. The final detailed design package must:
- a) be consistent with the drawings which were submitted as part of the Application and sealed by a Professional Engineer licensed to practice in Yukon;
  - b) include the results of a static stability assessment of the berms' slopes under potential loading conditions expected for the berms which includes dewatering, thawing of foundation permafrost, and development of excess pore pressures in foundation soils from thawing of permafrost;
  - c) include an identified range of compaction and moisture content required to achieve the appropriate low hydraulic conductivity and crack resistant, ductile behavior of the silt till cut-off wall;
  - d) include the location and type of geotechnical monitoring instrumentation selected by the design engineer to be installed to monitor (at a minimum) ground temperature, pore pressure, and settlement at critical locations around the facility; and
  - e) include a construction quality assurance/quality control program consisting of, but not limited to:

- i) methods for ensuring that construction conditions, materials, and installation comply with those specified in the design;
  - ii) methods for monitoring and controlling moisture content, compaction, and permeability of fill materials; and
  - iii) methods for installation and commissioning of installed geotechnical instrumentation.
3. Notification, including the name and phone number of the field supervisor, shall be provided to the Board, in writing, 10 days prior to the start of construction.
4. Within 60 days of completion of construction, the Licensee shall submit to the Board construction records from the construction quality assurance/quality control program and as-built design drawings for the completed structure, sealed by a Professional Engineer licensed to practice in Yukon.

#### Minor Modifications

5. Where site conditions require minor modifications to the designs submitted to the Board, the Licensee shall notify the Board, a minimum of 10 days in advance, of the details of the modifications or variations from final detailed design, specifications and quality assurance/quality control procedures previously submitted to the Board, provide a detailed construction schedule and the name and contact number(s) of the construction superintendent. The notice shall be in writing and must include an explanation of the reasons for the change and an assessment of the potential impact on the performance of the works. The notice shall be sealed by a Professional Engineer licensed to practice in Yukon.

#### Construction

6. All construction shall be carried out in accordance with the final design drawings.
7. All materials placed and compacted for construction of the lagoon earthworks shall be non-frozen

### **PART D - OPERATING CONDITIONS**

8. The Licensee shall operate and maintain the sewage collection, treatment and disposal systems in a manner which is consistent with standard municipal practices for the types of systems being used.
9. Operators transporting septage and untreated sludge shall be properly trained in the transportation and handling of hazardous substances and shall follow the requirements of Government of Yukon.
10. Sewage may only be conveyed to the wastewater treatment facility by truck or similar conveyance.



11. Public access to the wastewater treatment facility shall be restricted by perimeter fencing and a lockable gate. All fences shall be posted with signs warning of human health hazards associated with the facility.
12. The Licensee shall install two new groundwater monitoring wells (RR-18 and RR-19) as described in Register MN15-043, exhibit 6.1.2. The final location and installation of the groundwater monitoring wells shall be determined by a qualified individual or firm and in consultation with Government of Yukon, Environment Yukon, Water Resources Branch.
13. Upon completion of installation of the new groundwater monitoring wells, the Licensee shall submit to the Board, for all operational wells:
  - a) monitoring well descriptions and names,
  - b) coordinates for the monitoring well location
  - c) well installation details including drill logs; and
  - d) a map identifying the locations and monitoring well station names.

#### Effluent Discharge

14. Effluent shall only be discharged from the secondary lagoon to the Disposal Area. No effluent shall be allowed to directly enter any surface waters, including the Pelly River.
15. The effluent discharge from the secondary lagoon shall be carried out in a manner which minimizes the uptake and release of settled solids and sludge.
16. If flooding, ponding, flow inundation and/or erosion are identified in the Disposal Area as a result of the discharge, mitigation shall be applied immediately to rectify the situation.

#### Notification

17. The Licensee shall notify the Board and Inspections at least ten (10) days prior to commencing any effluent discharge from the secondary lagoon to the Disposal Area. The notice will include a confirmation that notice has also been provided to the Ross River Dena Council.

#### Sludge Management

18. Sludge from the solids separation tanks and any potential desludging of the lagoons shall only be placed on the sludge drying beds in snow free conditions.
19. Sludge removed from the sludge drying beds after treatment shall be disposed in a manner that meets the requirements of appropriate legislation including, but not limited to, the *Environment Act* and associated regulations.
20. The water elevation within the primary and secondary lagoon cells shall be maintained at least 0.5 m below the top of the silt till cut-off wall of the lagoon berms.
21. All works associated with the undertaking shall be maintained in good repair.
22. Construction and/or maintenance equipment shall be mechanically sound and free of leaks.



23. All water withdrawn from the excavation area during construction shall be deposited into a constructed sump and/or a natural depression.
24. Waste substances shall be used, transported, stored or disposed of in such a manner that they are not deposited, or allowed to be deposited, into any Watercourse or on any surrounding land, unless authorized by this licence.
25. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any operation carried out by the Licensee.
26. All disturbed ground surfaces shall be stabilized in such a manner so as to prevent erosion and surface runoff from carrying sediment into any Watercourse.

#### Water Pumps

27. All water pumps shall be contained within an impermeable liner/structure that has the capacity to contain 110% of the maximum combined volumetric capacity of the fuel, lubricants and coolants within the engine of the water pump.
28. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes that are consistent with *Freshwater Intake End-of-Pipe Fish Screen Guideline*.
29. The Licensee shall cease pumping or decanting and take remedial action if there is alteration to the bed or bank of the water channel as a result of pumping.

#### Spills and Unauthorized Discharges

30. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the *Yukon Spills Regulations*, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.
31. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.
32. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the *Yukon Spills Regulations*. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily limited to:
  - a) the date and time of the spill or unauthorized discharge occurrence;
  - b) the substance spilt or discharged;
  - c) the approximate amount spilt or discharged;
  - d) the location of spill;
  - e) the distance between the spill or discharge and the nearest Watercourse; and

- f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.
- 33. The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report.
- 34. All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill.
- 35. The Spill Contingency Plan shall be posted on site for the duration of the works.
- 36. Ten days prior to construction, the Licensee shall submit material safety data sheets to the Board for all petroleum products and/or hazardous materials that are to be present during this undertaking.

#### Fuel Storage and Transfer

- 37. Fuel, lubricants, hydraulic fluids, coolants and similar substances, with the exception with liquid associated with the water pump engine, shall be stored and/or transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.
- 38. Refuelling of equipment with limited mobility and water pumps may be refuelled within the Natural Boundary of the Pelly River. Refuelling activities shall adhere to the following:
  - a) no refuelling shall be conducted within the Wetted Perimeter of the Pelly River;
  - b) the fuel transfer shall be visually and continually monitored;
  - c) a containment tray will be placed below the vehicle's refuelling portal;
  - d) fuel transfer nozzles shall be operated manually and will not be locked in the open position;
  - e) spill kits, including absorbent pads shall be maintained in close proximity to the stationary equipment during refuelling operations;
  - f) fuel transfers shall be conducted with an operator at each end of the transfer hose;
  - g) fuel transfers shall only be conducted during daylight hours; and
  - h) fuel transfer equipment components such as pumps, hoses and nozzles shall be visually checked for leaks or damage prior to each refuelling operation.

#### Annual Reports

- 39. The Licensee shall submit annual reports to the Board for the period of January 1 to December 31 of each year. Annual reports are to be submitted to the Board on or before February 28 of the year following the year reported. The report shall include the information required by the Regulation including, but not necessarily limited to:
  - a) data collected as required by this licence;
  - b) details of the methods, procedures and standards used in the data collection and sample testing;
  - c) an analysis and interpretation of the collected data by an individual qualified to do so;

- d) a detailed record of the operations of the wastewater facility including operational difficulties, including monthly inspection reports
- e) physical inspection reports including photographs, repairs or plans for modification as required by the physical monitoring program;
- f) a detailed record of any maintenance, repairs or improvements to physical works, including details of how all recommendations from inspection reports and findings have been addressed;
- g) the location of any monitoring wells established during the year reported;
- h) details of and summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from baseline conditions or from previous years' data;
- i) details of any work carried out or planned to be carried out under the *Operation and Maintenance Plan*, *Monitoring and Surveillance Plan* and *Contingency Plan*;
- j) summary of the review and revisions of the Spill Contingency Plan;
- k) records of all spills/unauthorized discharges;
- l) a summary of the disposal of hazardous materials;
- m) the status of the decommissioning and reclamation plan, including potential changes in the proposed decommissioning and reclamation approach; and
- n) any other information or reports required by this licence.

A list of applicable clauses for the annual report is included in the Table of Deliverables that is attached to this licence.

#### Construction Progress Reporting

- 40. During construction, the Licensee shall submit monthly reports to the Board that provide an update on the progress of construction of the wastewater treatment facility.

#### Water Sampling Event Reporting

- 41. Within one month of each water sampling event, the Licensee shall submit a monitoring report to the Board. The report shall include, but not necessarily limited to, the following information:
  - a) Certificate of Analysis from an accredited laboratory;
  - b) a comparison of analytical results to the effluent quality standards listed in Part F of this licence, in tabular format; and,
  - c) a discussion of any irregularities and any corrective action taken to address them.

#### Reports and Plans

- 42. The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier.
- 43. The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, Waterline. Electronic copies shall be submitted in one of the following formats: MS Word, MS Excel, or Adobe .pdf.



44. Water quality results must be uploaded to Waterline in the format outlined in the most recent version of Yukon's "Laboratory Data Submission Standards for Water Quality". This guide is available on the Yukon Water Board website.

## PART E – PLANS

### Monitoring and Surveillance Plan

45. At least 90 days prior to commissioning of the wastewater treatment facility, the Licensee shall submit an updated *Monitoring and Surveillance Plan* for the facility which incorporates the terms and conditions of this licence. The updated plan shall also include, but not be limited to:
- a) a physical monitoring program that includes:
    - i) at least bi-annual monitoring and recording of measurements from geotechnical instrumentation installed at the facility;
    - ii) at least annual photographic records of facility conditions with the photographs taken from an identified series of pre-set locations; and
    - iii) at least an annual inspection of the facility by a geotechnical engineer licensed to practice in Yukon;
  - b) a water balance monitoring program that includes, but is not limited to, the means and frequency of measuring and recording:
    - i) influent sewage and fresh water delivered to the facility;
    - ii) effluent discharges out of the facility;
    - iii) levels in each settling tank and lagoon; and
    - iv) seepage pump back (if any) from the cut-off trench
  - c) a sludge monitoring program that includes, but is not limited to, the means and frequency of measuring and recording:
    - i) sludge levels in primary tanks and treatment cells; and
    - ii) sludge volumes removed from tanks and treatment cells and placed on the sludge drying beds.
  - d) a revised adaptive management section that includes, but is not limited to:
    - i) any identified measurements of pore pressure, ground temperature, or settlement from installed instrumentation that would trigger:
      - (1) increased monitoring frequency; or
      - (2) investigative actions
    - ii) specific plans for increased monitoring frequencies or investigations associated with the trigger measurements or thresholds for instrumentation.

### Contingency Plan

46. At least ten (10) days in advance of construction, the Licensee shall submit to the Board a contingency plan which includes procedures for the:
- a) replacement of damaged conveyance piping systems;
  - b) stabilization of slope failures on interior slopes;
  - c) repair of damaged berm cut-off walls; and
  - d) correction of seepage collection trench grades.

47. The contingency plan shall identify:
- fluid management requirements (e.g. any dewatering if required) necessary to implement contingency plans and how those requirements would be conducted; and
  - equipment requirements for the various repairs accounting for any limitations in access that may exist at the facility.
48. At least 90 days prior to commissioning of the wastewater treatment facility, the Licensee shall submit to the Board an updated *Operations and Maintenance Plan* for the facility which incorporates the terms and conditions of this licence. The facility shall be operated in accordance with that plan.
49. The updated Operating and Maintenance Plan must include at minimum the following components:
- protocols for collection, transport, handling, treatment and disposal of wastewater;
  - spill contingency plans and programs;
  - protocols for the discharge of effluent from the secondary lagoon to the Disposal Area;
  - training programs;
  - protocols for sludge monitoring;
  - protocols for sludge removal and operation of the sludge drying beds;
  - protocols for dried sludge characterization;
  - protocols for dried sludge disposal;
  - facility inspection protocols and procedures;
  - protocols for completing monitoring and surveillance requirements;
  - protocols for maintaining sufficient winter water levels in lagoons;
  - protocols for cut-off trench operations; and
  - protocols for maintenance of the facility.
50. Subject to any required assessments, authorizations or approvals, the Licensee shall implement all plans required by this section of this licence.

## PART F – EFFLUENT QUALITY STANDARDS

51. Effluent discharged from the treatment lagoons must meet the following effluent quality standards at station RR-13, as described in Schedule A of this licence:

Parameter	Maximum Concentration in a Grab Sample
pH	6.0 to 9.0 pH Units
Total Suspended Solids	25 mg/L
CBOD <sub>5</sub>	25 mg/L
Un-ionized Ammonia	1.25 mg/L at 15°C ± 1°C
Total oil and grease	5 mg/L
Total residual chlorine	0.02 mg/L
Fecal Coliforms	400 cfu/100 mL



52. The point of compliance for the effluent quality standards included in this licence shall be at station RR-13.

### **PART G – MONITORING AND SURVEILLANCE**

53. The Licensee shall comply with the *Monitoring and Surveillance Plan* and the monitoring and surveillance requirements specified in Schedule A of this licence. All data, information, reports, observations collected, analysis, and interpretations of the data shall be included in the annual report.
54. All data collection shall be conducted in accordance to a nationally recognized sampling protocol (e.g. CCME Protocols Manual for Water Quality Sampling in Canada, 2011).
55. Laboratory analyses shall be performed by a laboratory accredited under the *International Organization for Standardization ISO/IEC 17025: 2005* standard and the accreditation must include the actual tests being performed by the laboratory.

#### Wastewater Input to Lagoon

56. The Licensee shall monitor and record daily the number of educator loads and volume of Wastewater deposited into the first solids separation tank.

#### Monitoring of Disposal Area

57. The Licensee shall monitor the area in the vicinity of the Discharge Area during discharge for erosion, inundation, flooding and changes in vegetation.

#### Physical Inspections and Monitoring

58. An annual physical inspection of the wastewater facility shall be carried out by a Professional Engineer licensed to practice in Yukon. A report on the inspection, prepared by the Professional Engineer, shall be submitted as part of the annual report described in Part D of this licence. The report shall document the inspection locations and methodologies, the results of the inspection, all problems identified, remedial measures recommended, and remedial measures implemented. The status of any remedial measures recommended in the previous year's inspection report shall be appended to the report together with an explanation regarding any recommendation not implemented.
59. Details of any maintenance, inspection and/or surveillance activities undertaken in the previous year shall be included in the annual report.

### **PART H - SITE DECOMMISSIONING AND RESTORATION**

60. All disturbed ground surfaces shall be re-graded in a manner which is consistent with the topography of the site and which prevents erosion and surface runoff from carrying sediment into any Watercourse. Where soil conditions permit, disturbed areas shall be re-vegetated with appropriate reclamation seeds and/or plant species that are native in Yukon.

61. All construction materials, equipment, temporary structures and debris shall be removed from the site upon completion of the work.
62. All hazardous materials and hydrocarbons shall be disposed of in accordance with the provisions of the *Special Waste Regulations* and the *Contaminated Sites Regulation* of the *Environment Act* and shall include a description of the disposal(s) as part of the annual report.
63. Ninety (90) days following the issuance of this licence, the Licensee shall develop a preliminary decommissioning and reclamation plan for the closure of the Ross River Wastewater Treatment Facility and submit the plan to the Board. As part of each annual report, the Licensee shall report on the status of the decommissioning and reclamation plan.
64. A minimum of one year prior to the commencement of decommissioning activities the Licensee shall develop a final decommissioning and reclamation plan for the closure of the Ross River Wastewater Treatment Facility and submit the plan to the Board. The plan shall include, but not necessarily be limited to, a schedule and cost for completion of decommissioning and reclamation activities.
65. Subject to any required assessments, authorizations or approvals, the Licensee shall implement the plan required by this section of this licence.

#### **PART I – GENERAL CONDITIONS**

66. The Licensee shall ensure a copy of this Licence is maintained at the site during operations at all times.

##### Other Laws

67. No condition of this licence limits the applicability of any statutory authority.
68. All construction or installation of works authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

##### Non-Compliance

69. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

##### Correspondence

70. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:
  - a) to the Licensee, if delivered, faxed, or mailed by registered mail to the address identified on page 1 of this licence, and shall be deemed to have been given to the Licensee on the day it was delivered, faxed, or 7 days after the day it was mailed, as the case may be; or

b) to the Board, if delivered, faxed or mailed by registered mail to the following address:

Yukon Water Board  
Suite 106, 419 Range Road  
Whitehorse, YT Y1A 3V1  
Fax: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

The Board or the Licensee may, by notice in writing, change its address for delivery.

---



**SCHEDULE A – MONITORING AND SURVEILLANCE REQUIREMENTS****1. LOCATIONS OF SAMPLING STATIONS:**

<b>Station</b>	<b>Description</b>
RR-11	Lagoon #1 – Small (primary) lagoon
RR-12	Lagoon #2 – Large (secondary) lagoon
RR-13	Effluent at the discharge pipe
RR-14	Cut-off Trench Sump area west of the lagoon
RR-15	Wetland #1 – small wetland located at SE corner of the lagoon site (up-gradient)
RR-16	Well #1 (MW14-01) up-gradient of the lagoon cells
RR-17	Well #3 (MW14-03) west of the lagoon cells
RR-18	New well – down-gradient of lagoons
RR-19	New well – down-gradient of lagoons
RR-20	Water pumped from Pelly River

## 2. SAMPLING AND MONITORING SCHEDULE

Sampling Location/Parameter <sup>3</sup>	RR-11	RR-12	RR-13	RR-14	RR-15	RR-16, RR17, RR-18, RR-19	RR-20
pH <sup>1</sup>	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Temperature <sup>2</sup>	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Specific Conductance <sup>1</sup>	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Dissolved Oxygen <sup>2</sup>	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Colour	2DA	2DA	2DD	2DA	2DA	2DA	
CBOD <sub>5</sub>	2DA	2DA, 1P	2DD	2DA	2DA		
Total Suspended Solids	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Chloride	2DA	2DA	2DD	2DA	2DA	2DA	
Un-Ionized Ammonia	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Nitrate-N	2DA	2DA	2DD	2DA	2DA	2DA	
Nitrite-N	2DA	2DA	2DD	2DA	2DA	2DA	
Total Phosphorus	2DA	2DA	2DD	2DA	2DA	2DA	
Sulphate	2DA	2DA	2DD	2DA	2DA	2DA	
Oil and Grease (total)	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Fecal Coliforms (CFU)	2DA	2DA, 1P	2DD	2DA	2DA	2DA	
Total Metals	2DA	2DA	2DD	2DA	2DA	2DA	
Dissolved Metals	2DA	2DA	2DD	2DA	2DA	2DA	
VOCs	-	-	-	-	-	2DA	
Water Level Elevation	M	M	-	-	-	2DA	
Sludge Level	A	A	-	-	-	-	
Waste Water Influent	C	-	-	-	-	-	
Volume		-	CD	CP	-	-	CP

1 = In situ and in lab; 2 = In situ; 3 = all samples are grab samples

## LEGEND

A = Annually; C = Continuously; CD = Continuously during discharge; M = Monthly in summer; 1P = Once before discharge (near effluent discharge location) to ensure compliance; CP = continuously while pumping  
 2DD = Twice during discharge: first sampling at beginning of discharge period and second event mid-way during discharge period (discharge to occur from mid-July to mid-September);  
 2DA = Twice annually during and after discharge (first sampling in July/August, and in September/October).

**TABLE OF DELIVERABLES**

<b>Clauses</b>	<b>Item</b>	<b>Schedule for Submissions</b>
2	Final Detailed Design	Ten (10) days prior to construction
3	Notification of Commencement of Construction	Ten (10) days prior to construction
4	Final As-Built Drawings and Construction Record	Within 60 days of completion of construction
30	Spills/Unauthorized Discharge Report	Within 10 days after the occurrence.
31, 33, 39, 53, 59, 62, 63	Annual Report	February 28 <sup>th</sup> of the year following the reporting period of January 1 to December 31 of each year.
40	Construction Progress Report	Monthly during construction
41	Water Sampling Report	Within 1 month of sampling event
45	Monitoring and Surveillance Plan	90 days prior to commissioning of the facility
46, 47	Contingency Plan	10 days prior to construction
48, 49	Updated Operating Plan	90 days prior to commissioning of the facility
63	Preliminary Decommissioning and Reclamation Plan	Within 90 days of the issuance of MN15-043.
64	Decommissioning and Reclamation Plan	Minimum of 1 year prior to the commencement of decommissioning activities.

Note: General submission requirements for reports and plans are included in Clauses 42, 43 and 44.



## YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type B water licence for a municipal undertaking to:

Kaminak Gold Corporation  
Suite 1020 – 800 West Pender Street  
Vancouver BC  
V6C 2V6  
Fax#: (604) 646-4526

**LICENCE NUMBER:** MN16-034

**RENEWAL:** This licence shall be deemed to be a renewal of MN12-014.

**LICENCE TYPE:** B                      **UNDERTAKING:** MUNICIPAL

**WATER MANAGEMENT AREA:** 02 Yukon

**WATER SOURCE:** Yukon River

**MAXIMUM QUANTITY:** 20 cubic metres per day

**LOCATION:** Yukon River

**MAP CO-ORDINATES:** Latitude: 62° 54' 47" N Longitude: 139° 4' 58" W

**PURPOSE:** To withdraw and store water, operate a wastewater treatment and disposal system, and construct and manage a wastewater lagoon for an 80-person camp.

**EFFECTIVE DATE:** July 12, 2016

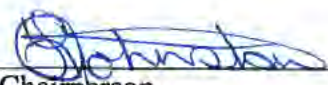
**EXPIRY DATE:** July 11, 2026

This licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Dated this 11 day of  
July, 2016

Approved by:

Witness

  
Chairperson  
YUKON WATER BOARD

## PART A - DEFINITIONS

“Act” means *Waters Act* and any amendments thereto.

“Application” means Water Use Application MN16-034 including any additional submissions and/or revisions submitted to the Yukon Water Board by the Licensee, up to the date of the Board’s decision.

“Board” means the Yukon Water Board.

“Inspector” means any person designated as an Inspector under the Act.

“Natural Boundary” means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.

“Regulation” means the *Waters Regulation* made under the Act.

“Spill Contingency Plan” means the *Kaminak Gold Corporation Spill Response Plan* that was submitted as part of the Application and included in Water Use Register MN16-034 as exhibit 1.5, and any subsequent revisions.

“Waste” means any substance as defined in the Act.

“Watercourse” means a natural watercourse, body of water or water supply, whether usually containing water or not, and includes groundwater, springs, swamps, and gulches.

## PART B – WATER USE AND DEPOSIT OF WASTE

I. The Licensee is hereby authorized to:

- a) withdraw and store 20 m<sup>3</sup>/day of water from the Yukon River for municipal purposes;
- b) operate a wastewater treatment and disposal system;
- c) construct a wastewater treatment lagoon;
- d) operate, maintain and decommission wastewater treatment lagoons; and
- e) deposit a waste to groundwater;

as described in the Application, and subject to the conditions of this licence. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.



2. The Licensee shall operate and maintain the wastewater treatment facility in a manner which is consistent with standard municipal practices.

### **PART C – DESIGN AND CONSTRUCTION**

3. Notification, including the name and phone number of the field supervisor, shall be provided to the Board, in writing, 10 days prior to the start of construction and upgrading of the sewage collection, treatment, and disposal infrastructure.

#### **Design**

4. The Licensee shall provide to the Board, verification to confirm whether or not the existing sewage collection infrastructure, including the pumping station and forcemain, are adequate to receive sewage for an 80-person camp. If existing sewage collection infrastructure requires upgrading, the Licensee shall submit design drawings and specifications of any proposed upgrades a minimum of 30 days prior to the commencement of construction. The design drawings shall be sealed by a Professional Engineer licensed to practice in Yukon.
5. The Licensee shall provide to the Board, final design drawings or a final design report for the wastewater treatment plant, a minimum of 10 days prior to the commissioning of the wastewater treatment plant. The final design drawings or a final design report shall be sealed by a Professional Engineer licensed to practice in Yukon.
6. Within 60 days of the completion of the construction of the lagoon 3 and any upgrades of the sewage collection infrastructure, the Licensee shall submit to the Board, as-built design drawings of the lagoon, sealed by a Professional Engineer licensed to practice in Yukon.
7. Where site conditions require minor modifications to the designs submitted to the Board, the Licensee shall notify the Board, a minimum of 10 days in advance, of the details of the modifications or variations from final detailed design, specifications and quality assurance/quality control procedures previously submitted to the Board, provide a detailed construction schedule and the name and contact number(s) of the construction superintendent. The notice shall be in writing and must include an explanation of the reasons for the change and an assessment of the potential impact on the performance of the works. The notice shall be sealed by a Professional Engineer licensed to practice in Yukon.

#### **Construction and Maintenance**

8. All works associated with the undertaking shall be maintained in good repair.
9. Construction and/or maintenance equipment shall be mechanically sound and free of leaks.
10. Granular bedding and backfill material shall consist of non-frozen material.
11. Waste substances shall be used, transported, stored or disposed of in such a manner that they are not deposited, or allowed to be deposited, into any Watercourse or on any surrounding land, unless authorized by this licence.

12. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any operation carried out by the Licensee.
13. All disturbed ground surfaces shall be stabilized in such a manner so as to prevent erosion and surface runoff from carrying sediment into any Watercourse.

## **PART D –OPERATING CONDITIONS**

### **Water Pumps**

14. All engine driven pumps shall be contained within an impermeable liner/structure that has the capacity to contain 110% of the maximum combined volumetric capacity of the fuel, lubricants and coolants within the engine of the water pump.
15. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes as follows:
  - a) Screens or nets shall have a minimum of 3.5 openings per centimetre and openings no greater than 3.2 millimetres along any given side.
  - b) If a punch plate or similar material is used, openings shall be no greater than 3.2 millimetres in length or width.
  - c) There shall be no less than 929 square centimetres of open screen for every 205 litres per minute being withdrawn.
  - d) The barriers shall be monitored and maintained to ensure that they function effectively at all times when water is being withdrawn.
  - e) The barriers shall be designed and installed in such a manner that the screen is submerged and a uniform flow distribution is maintained through the total screen area.
  - f) Water shall not be withdrawn when the barrier is removed for renewal, repair or inspection.
16. The Licensee shall cease pumping or decanting and take remedial action if there is alteration to the bed or bank of the water channel.

### **Spills and Unauthorized Discharges**

17. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the Yukon Spills Regulations, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.
18. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.



19. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon Spills Regulations. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to:
  - a) the date and time of the spill or unauthorized discharge occurrence;
  - b) the substance spilt or discharged;
  - c) the approximate amount spilt or discharged;
  - d) the location of the spill;
  - e) the distance between the spill or discharge and the nearest Watercourse; and
  - f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.
20. The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report.
21. All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill.
22. Prior to the commencement of construction, the Licensee shall update the Spill Contingency Plan and provide the updated plan to the Board.
23. The Spill Contingency Plan shall be posted on site for the duration of the works.

#### Fuel Storage, Fuel Transfer and Refueling

24. Fuel, lubricants, hydraulic fluids, coolants and similar substances shall be stored and/or transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.

### **PART E – EFFLUENT QUALITY STANDARDS**

25. Waste discharged to lagoon 3 from the wastewater treatment systems at station C-2, or station C-3, as described in Schedule A of this licence, shall not exceed the following effluent discharge standards:

<b>Parameter</b>	<b>Maximum Concentration in a Grab Sample</b>
pH	6 to 9 pH units
CBOD <sub>5</sub>	25 mg/L
Total Suspended Solids (TSS)	25 mg/L
Total Residual Chlorine (TRC)	0.02 mg/L
Un-ionized Ammonia (NH <sub>3</sub> ) <sup>1</sup>	1.25 mg/L @15°C ± 1°C
Oil and Grease	5 mg/L
Fecal Coliform	100 counts/ 100ml

<sup>1</sup> In situ temperature and pH readings are required to be taken for this parameter.



**PART F - PHYSICAL INSPECTIONS, MONITORING AND SURVEILLANCE**

26. The Licensee shall establish water quality monitoring stations, C-1, C-2, C-3, MW-1, MW-2, MW-3, and MW-4, as described in table A-1 of Schedule A. The Licensee shall submit to the Board the UTM coordinates of these newly established monitoring stations when submitting the first monitoring results for these stations.
27. The Licensee shall comply with the water quality monitoring program and surveillance network program contained in Schedule A of this licence.
28. All data collection and analyses shall be conducted in accordance with the most recent edition of *Standard Methods for the Examination of Water and Wastewater*, prepared and published jointly by the American Waterworks Association and the Water Pollution Control Federation.
29. The Licensee shall compile data relating to the surveillance network program into a monthly report. The report shall be submitted to the Board within 30 of the end of each month for which the report is compiled.

**Physical Inspections and Monitoring**

30. An annual inspection of the lagoons shall be carried out by a Professional Engineer licensed to practice in Yukon. A report on the inspection, prepared by the Professional Engineer, shall be submitted as part of the annual report. The report shall document the inspection locations and methodologies, the results of the inspection, all problems identified, and remedial measures recommended.
31. The Licensee shall monitor and record observations pertaining to the stability of the lagoon berms. If monitoring indicates potential berm failure, corrective action shall be taken.

**PART G - SITE DECOMMISSIONING AND RESTORATION**

32. The Licensee shall submit a decommissioning plan to the Board, 90 days prior to commencing decommissioning activities.
33. As part of final decommissioning, all disturbed ground surfaces shall be regraded in a manner which is consistent with the topography of the site and which prevents erosion and surface runoff from carrying sediment into any Watercourse.
34. All wastewater treatment infrastructure, equipment, temporary structures and debris shall be removed from the site as part of final decommissioning of the wastewater treatment system.