

Pursuant to the *Mackenzie Valley Resource Management Act* and Regulations, the Mackenzie Valley Land and Water Board, hereinafter referred to as the Board, hereby grants to:

City of Yellowknife  
(Licensee)

of P.O. Box 580, Yellowknife, NT X1A 2N4  
(mailing address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water subject to the restrictions and conditions contained in the *Northwest Territories Waters Act* and Regulations made thereunder and subject to and in accordance with the conditions specified in this Licence.

Licence number:	<u>MV2009L3-0007</u>
Licence type:	<u>A</u>
Water management area:	<u>Northwest Territories 01</u>
Location:	<u>62° 28' N; 114° 26' W</u>
Purpose:	<u>Use of water and disposal of waste</u>
Description:	<u>Municipal purposes</u>
Quantity of water <b>not to be exceeded:</b>	<u>3, 600, 000 cubic metres annually</u>
Effective date of licence:	<u>May 31, 2010</u>
Expiry date of licence:	<u>May 30, 2022</u>

This Licence issued and recorded at Yellowknife includes and is subject to the annexed conditions.

**Mackenzie Valley Land and Water Board**

Chair

Witness

Approved by

Chand J. All  
**Minister of Indian Affairs and Northern Development**

## Part A: Scope and Definitions

### Scope

This Licence entitles the City of Yellowknife to use Water and dispose of Waste for municipal purposes at the City of Yellowknife, Northwest Territories, located at: 62°28' N; 114°26' W.

### Definitions

In this Licence, **MV2009L3-0007**:

**“Act”** means the *Northwest Territories Waters Act*.

**“Analyst”** means an Analyst designated by the Minister under subsection 35(1) of the Act.

**“Average Concentration”** means the discrete average of four consecutive analytical results, or if less than four analytical results, the discrete average of the analytical results collected during a batch decant, and as submitted to the Board in accordance with the sampling and analysis requirements specified in the Surveillance Network Program.

**“Average Concentration for Faecal Coliforms”** means the running geometric mean of any four consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the Surveillance Network Program.

**“Bagged Toilet Waste Disposal Facilities”** comprises the area and associated structures designed to contain bagged Toilet Wastes (honey bags) as described in Water Licence Renewal Application - Supplementary Report, Section 5.1.3 Bagged Sewage and figure titled “Map #4 Fiddlers Lake Drainage Area”, and dated March 24, 2009.

**“Biotreatment Pad”** comprises the area and associated engineered infrastructure designed to contain and treat hydrocarbon contaminated soils, as described in *Addendum to the City of Yellowknife Water Licence Modification to the Conditions of the Soil Treatment Facility Operations*, Final Version, May 2007, Figure 1 titled “Yellowknife Soil Treatment Facility Addendum to License N1L3-0032 Solid Waste Facility Yellowknife As-Built Drawing” and dated September 27, 2006.

**“Board”** means the Mackenzie Valley Land and Water Board established under Part 4 of the *Mackenzie Valley Resource Management Act*.

**“Coarse-grained Soil”** means coarse-textured soil having a median grain size of  $>75 \mu\text{m}$  as defined by the American Society for Testing and Materials D422-63 (2007) “Standard Test Methods for Particle-Size Analysis of Soils”, or subsequent edition.

**“Engineer”** means a professional Engineer registered to practice in the Northwest Territories in accordance with the *Engineering and Geoscience Professions Act*, S.N.W.T. 2006, c.16.

**“Fine-grained Soil”** means fine-textured soil having a median grain size of  $<75 \mu\text{m}$  as defined by the American Society for Testing and Materials D422-63 (2007) “Standard Test Methods for Particle-Size Analysis of Soils”, or subsequent edition.

**“Freeboard”** means the vertical distance between the water line and the lowest elevation of the effective water containment crest on a dam or dyke’s upstream slope.

**“Greywater”** means all liquid Wastes from showers, baths, sinks, kitchens, and domestic washing facilities but does not include Toilet Wastes.

**“Inspector”** means an Inspector designated by the Minister under subsection 35(1) of the Act.

**“Licensee”** means the holder of this Licence.

**“Minister”** means the Minister of Indian Affairs and Northern Development.

**“Modification”** means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work but does not include an expansion.

**“Pumpout Sewage”** means all Toilet Wastes and/or Greywater collected by means of a vacuum truck for disposal at the Sewage Disposal Facilities.

**“Record Drawings”** means as-built drawings that have been verified by an Engineer.

**“Regulations”** means Regulations proclaimed pursuant to Section 33 of the Act.

**“Sewage”** means all Toilet Wastes and Greywater.

**“Sewage Disposal Facilities”** comprises the area and engineered structures designed to contain and treat Sewage, as shown in Water Licence Renewal Application - Supplementary Report, figure titled “Map #4 Fiddlers Lake Drainage Area”, and dated March 24, 2009, as well as the adjacent wetland area.

**“Solid Waste Disposal Facilities”** comprises the area and associated structures designed to contain solid Wastes, as shown in Water Licence Renewal Application - Supplementary Report, figure titled “Map #7 Solid Waste Facility Layout”, and dated June 29, 2009.

**“Surveillance Network Program”** means a monitoring program established to define environmental sampling and analysis requirements, to collect data on surface water and groundwater quality, and to assess discharge quality and licence compliance, and the potential for impacts to the environment.

**“Toilet Wastes”** means all human excreta and associated products but does not include Greywater.

**“Waste(s)”** means Waste as defined by Section 2 of the Act.

**“Waste Disposal Facilities”** mean all facilities designated for the disposal of Waste, and includes the Solid Waste Disposal Facilities, Sewage Disposal Facilities, and Bagged Toilet Wastes Disposal Facilities.

**“Water(s)”** mean any Waters as defined by Section 2 of the Act.

**“Water Supply Facilities”** comprises the area and associated intake infrastructure, as identified in Water Licence Renewal Application - Supplementary Report, figure titled “Map #2 Piped Water System”, and dated March 24, 2009.

#### **Part B: General Conditions**

- B.1 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 deposition of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the *Northwest Territories Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations.
- B.2 Compliance with the terms and conditions of this Licence does not absolve the Licensee from the responsibility for compliance with the requirements of all applicable federal, territorial, and municipal legislation.
- B.3 The Licensee shall file an annual report with the Board not later than March 31 of the year following the calendar year reported which shall contain the information as set out in Schedule 1, Item 1, included in this Licence.
- B.4 The Licensee shall comply with the Surveillance Network Program annexed to this Licence, and with any amendment(s) to the said Surveillance Network Program, as approved by the Board.
- B.5 The Licensee shall comply with the Schedules annexed to this Licence, and any amendment to the said Schedules, as approved by the Board.
- B.6 The Surveillance Network Program, Schedules, and compliance dates specified in the Licence may be modified at the discretion of the Board.
- B.7 Meters, devices, or other such methods used for measuring the volumes of Waters used and Waste discharged shall be installed, operated, and maintained by the Licensee to the satisfaction of an Inspector.
- B.8 The Licensee shall maintain, to the satisfaction of an Inspector, the necessary signs to identify the stations of the Surveillance Network Program.

- B.9 The Licensee shall relocate Surveillance Network Program sites 0032-13 and 0032-15, by September 1, 2010 to the satisfaction of an Inspector. The new locations for the Surveillance Network Program monitoring stations shall be designated as SNP 0032-13A and SNP 0032-15A. The Licensee shall notify the Board of the relocation and provide GPS coordinates of these stations.
- B.10 The Licensee shall maintain all signs posted to inform the public of Water Supply and Waste Disposal Facilities and shall post any additional signage, as required, to the satisfaction of an Inspector.
- B.11 The Licensee shall ensure a copy of this Licence is maintained at the City of Yellowknife office(s), the Solid Waste Disposal Facilities, and the Water Supply Facility office, at all times.

**Part C: Conditions Applying to Water Use**

- C.1 The Licensee shall obtain all Waters from the Yellowknife River using the Water Supply Facilities for municipal undertakings as described in the Water Licence Application received by the Board on July 10, 2009 or as otherwise approved by the Board.
- C.2 The total amount of Water obtained from the Yellowknife River for municipal purposes shall not exceed 3,600,000 cubic metres per year.
- C.3 The maximum amount of Water obtained shall not exceed 575,000 cubic metres per month.
- C.4 The Water intake pipe used on the Water pumps shall be equipped with a screen with a mesh size and screen design sufficient to ensure no entrainment or impingement of fish, as outlined in “Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline (1995)” or subsequent approved editions.

**Part D: Conditions Applying to Waste Disposal**

- D.1 The Licensee shall direct all piped and Pumpout Sewage to the Sewage Disposal Facilities or as otherwise approved by the Board.
- D.2 All sewage effluent discharged from the Sewage Disposal Facilities at Surveillance Network Program Station Number 0032-F3 shall meet the following effluent quality requirements:

<b>Parameter</b>	<b>Maximum Average Concentration</b>	<b>Maximum Grab Sample</b>
Faecal Coliform (FC)	200 FC per 100 ml	400 FC per 100 ml
BOD <sub>5</sub>	20 mg/L	30 mg/L
Total Suspended Solids	20 mg/L	40 mg/L
Oil and Grease	No visible sheen	

Acute Toxicity-Rainbow Trout: static pass/fail bioassay test whereby 70 percent survival is considered a pass.

Acute Toxicity-*Daphnia magna*: static pass/fail bioassay test whereby 70 percent survival is considered a pass.

The Waste discharged shall have a pH between 6 and 9.

- D.3 The Licensee shall advise an Inspector and notify the Board at least ten days prior to initiating decant of the sewage lagoon.
- D.4 The Licensee shall maintain the Sewage Disposal Facilities to the satisfaction of an Inspector.
- D.5 A Freeboard limit of 1 meter shall be maintained at all times at all constructed berms, dykes, and dams within the Sewage Disposal Facilities or as recommended by an Engineer and approved by the Inspector.
- D.6 All bagged Toilet Wastes shall be disposed of at the Bagged Toilet Waste Disposal Facilities to the satisfaction of an Inspector.
- D.7 The Licensee shall dispose of all solid Wastes at the Solid Waste Disposal Facilities or as otherwise approved by the Board.
- D.8 The Licensee shall ensure all treated soil from the Biotreatment Pad that will be used for capping material of landfill cells will meet the following criteria prior to incorporation:

Parameter	Maximum Grab Sample
pH	6–8
Benzene	5.0 mg/kg
EthylBenzene	20 mg/kg
Toluene	0.8 mg/kg
Xylene	20 mg/kg

As outlined for Industrial undertakings in the GNWT “Guideline for Contaminated Site Remediation” or subsequent approved editions, total petroleum hydrocarbons shall meet the following criteria prior to incorporation:

Total Petroleum Hydrocarbons	Fine Grained Soils	Coarse Grained Soils
Fraction 1 (C6-C10)	660 mg/kg	310 mg/kg
Fraction 2 (>C10-C16)	1500 mg/kg	760 mg/kg
Fraction 3 (>C16-C34)	2500 mg/kg	1700 mg/kg
Fraction 4 (>C34)	6600 mg/kg	3300 mg/kg

If testing for particle size is not completed by the Licensee to determine if soil is Coarse or Fine-grained, soil must be treated to achieve the Coarse-grained soil criteria.

- D.9 The Licensee shall maintain all dams, berms, dykes, and control structures associated with the Waste Disposal Facilities and Water Supply Facilities to the satisfaction of an Engineer. An inspection of all dams, berms, dykes, and control structures shall be completed once every two years by an Engineer. The Engineer's report shall be submitted to the Board within 60 days of the inspection and include a cover letter from the Licensee outlining an implementation plan to respond to any recommendations made by the Engineer and a summary of any actions taken by the Licensee to satisfy the previous review recommendations made by the Engineer.
- D.10 The Licensee shall, within 15 months of the issuance of this licence, submit to the Board for approval a stormwater management plan which shall contain the information as set in Schedule 2, item 1, included in this Licence.
- D.11 The Licensee shall, at least 90 days prior to construction of a new landfill cell at the Solid Waste Disposal Facilities, submit to the Board for approval, a design report that is signed and stamped by an Engineer that shall include, but not be limited to:
- a) Final design drawings signed and stamped by an Engineer which note "issued for construction" or similar phrase clearly shown;
  - b) Construction and materials specifications; and
  - c) Construction Quality Assurance and Quality Control program.
- D.12 The Licensee shall, within 60 days prior to operation of a new landfill cell at the Solid Waste Disposal Facilities, submit to the Board for approval, an updated operations and maintenance manual.
- D.13 The Licensee shall within six months of completion of construction of a new landfill cell at the Solid Waste Disposal Facilities, submit to the Board for approval, as-built plans and Record Drawings, signed and stamped by an Engineer.
- D.14 The Licensee shall, within 18 months of issuance of this licence, submit to the Board for approval, a revised solid waste disposal facilities drainage study that includes, but is not limited to, the information as set in Schedule 2, item 2, included in this Licence.
- D.15 The Licensee shall by March 31, 2012, submit to the Board for approval, a revised Fiddlers Lake treatment system plan that shall include, but is not limited to, the information as set in Schedule 2, item 3, included in this Licence.
- D.16 The Licensee shall within 60 days prior to any upgrading the Sewage Disposal Facilities, submit to the Board for approval, a design report that is signed and stamped by an Engineer that shall include, but not be limited to, for-construction drawings signed and stamped by an Engineer and construction and materials specification including the Licensee's Construction Quality Assurance and Quality Control Program.
- D.17 The Licensee shall, within 90 days of completion of any upgrades to the Sewage Disposal Facilities, submit to the Board for approval, as-built plans and Record Drawings, signed and stamped by an Engineer, of the upgrades completed on the Sewage Disposal Facilities.

- D.18 The Licensee shall, within six months of issuance of this Licence, submit to the Board for approval, current Record Drawings of the Sewage Disposal Facilities.
- D.19 The Licensee shall, within 18 months of issuance of this Licence, submit to the Board for approval, a report that includes, but is not limited to:
- a) Occurrence and generation of algal blooms within the Sewage Disposal Facilities;
  - b) The associated impacts of seasonal changes in pH;
  - c) Evaluation of mitigative measures to achieve water quality compliance at SNP 0032-F3; and
  - d) An implementation plan and schedule for mitigative practices, if required.
- D.20 The Licensee shall complete a one year-long characterization study of Sewage effluent in accordance with the "Canadian Council of Ministers of Environment's 2009 Strategy for Treatment of Municipal Wastewater Effluent". The Licensee shall submit to the Board for approval, a report of the Sewage effluent study by March 31, 2012.
- D.21 The Licensee shall complete monitoring of wastewater effluent quality for carbonaceous biological oxygen demand (CBOD) and biological oxygen demand (BOD) for a minimum of three years. The study findings, including a trend analysis, shall be submitted to the Board for approval before August 31, 2014.
- D.22 The Licensee shall, by March 31, 2012, complete and submit to the Board for approval, a study on the capabilities of the effluent discharge area for the Biotreatment Pad of the Solid Waste Disposal Facilities to absorb Water. This study and report shall consider discharge volume and seasonal timing for discharge.
- D.23 The Licensee shall, by March 31, 2013, complete and submit to the Board for approval, a study to understand metal concentrations in surface Water in the vicinity of the Solid Waste Disposal Facilities. The study should include recommendations for mitigation measures should the metal concentrations be linked to a solid Waste source.

#### **Part E: Conditions Applying to Modifications**

- E.1 The Licensee may, without written approval from the Board, carry out Modifications to the Water Supply Facilities 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 60 days prior to beginning the Modifications;
  - b) Such Modifications do not place the Licensee in contravention of either the Licence or the Act;
  - c) The Board has not, during the 60 days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than 60 days; and
  - d) The Board has not rejected the proposed Modifications.



- E.2 Modifications for which all of the conditions referred to in Part E, item 1 have not been met, can be carried out only with written approval from the Board.
- E.3 The Licensee shall provide to the Board as-built plans and Record Drawings, signed and stamped by an Engineer, of Modifications referred to in Part E within 90 days of completion of the Modifications.

**Part F: Conditions Applying to Closure and Reclamation**

- F.1 The Licensee shall submit to the Board for approval an interim Closure and Reclamation plan for the Solid Waste Disposal Facilities at least 6 months prior to closure of the current solid waste disposal cell. The Plan shall include, but not be limited to, the information as set in Schedule 3, Item 1, included in this Licence.
- F.2 The Licensee shall submit to the Board for approval a closure and reclamation plan at least six months prior to abandoning any Waste Disposal Facilities. The plan shall include, but not be limited to, the information as set in Schedule 3, Item 1, included in this Licence.
- F.3 The Licensee shall implement the Plan specified in Part F, Items 1 and 2 as and when approved by the Board.

**Part G: Conditions Applying to Construction**

- G.1 Prior to construction of any dams, dykes, or control structures intended to contain, withhold, divert, or retain Waters or Wastes, the Licensee shall submit to the Board, at least 60 days prior to construction, final design drawings stamped and signed by an Engineer, which notes "issued for construction" or similar phrase.
- G.2 Construction of designed structures shall be carried out as approved by the Board.
- G.3 The Licensee shall provide to the Board as-built plans and Record Drawings, signed and stamped by an Engineer, of the constructed facilities referred to in Part G, Item 1 within 90 days of completion.

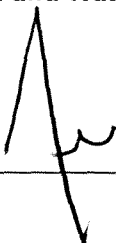
**Part H: Conditions Applying to Operation and Maintenance**


- H.1 The Licensee shall, within the timelines as listed in Schedule 4, item 1, submit to the Board for approval updated plans for the operation and maintenance of the Waste Disposal Facilities. These plans shall include, but not be limited to, the information as set in Schedule 4, Item 1, included in this Licence.
- H.2 The Licensee shall implement the updated plans specified in Part H, Item 1 as and when approved by the Board.
- H.3 The Licensee shall annually review the updated operations and maintenance plans in Schedule 4, item 1 and shall modify these plans to identify changes in operations, technology, and results from research and other studies. All proposed updates or revisions to the plan shall be submitted to the Board for approval and included as an update in the Annual Report.

**Part I: Conditions Applying to Spill Contingency Planning**

- I.1 The Licensee shall, within six months of the issuance of this Licence, submit to the Board for approval a spill contingency plan in accordance with "Indian and Northern Affairs Canada's 2007 Guidelines for Spill Contingency Planning". The Spill Contingency Plan shall apply to the Waste Disposal Facilities and Water Supply Facilities. The Spill Contingency Plan shall include, but not be limited to, an action plan to mitigate effects from leaks or spills.
- I.2 The Licensee shall review the Spill Contingency Plan annually and modify the plan as necessary to reflect changes in operation, technology and staffing. All proposed updates or revisions shall be submitted to the Board for approval.
- I.3 The Licensee shall immediately report to the 24-Hour Spill Report Line (867-920-8130) any spills of Waste, as outlined in "Indian and Northern Affairs Canada's 2007 Guidelines for Spill Contingency Planning", which are reported to or observed by the Licensee, within the City of Yellowknife boundaries or in the areas of the Water Supply Facilities or Waste Disposal Facilities.
- I.4 If, during the period of this Licence, an unauthorized discharge of Waste occurs, or if such a discharge is foreseeable, the Licensee shall:
  - a) Employ the Spill Contingency Plan;
  - b) Report the incident immediately via the 24 Hour Spill Report Line at (867) 920-8130; and
  - c) Submit to an Inspector a detailed report on each occurrence not later than 30 days after initially reporting the event.

**Mackenzie Valley Land and Water Board**

Chair 

Witness 

## **Schedule 1 – General Conditions**

1. The Annual Report referred to in Part B, item 3 shall include, but not necessarily be limited to, the following:
  - a) The monthly and annual quantities in cubic metres of fresh Water obtained from all sources;
  - b) The monthly and annual quantities in cubic metres of each and all Waste discharged to the Waste Disposal Facilities;
  - c) The monthly and annual quantities of Waste removed from the Waste Disposal Facilities;
  - d) A summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures;
  - e) Tabular summaries of all data generated under the Surveillance Network Program;
  - f) A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
  - g) A summary of any studies requested by the Board that relate to Waste disposal, Water use or reclamation, and a brief description of any future studies planned;
  - h) A list of unauthorized discharges;
  - i) Comparison of Waste volumes accepted to the remaining storage volume at the Waste Disposal Facilities;
  - j) The monthly and annual quantities of organics received and quantity of compost produced and/or distributed from the compost facility;
  - k) Record of Biotreatment Pad containment pond liner inspections;
  - l) Updates or revisions to the approved Stormwater Management Plan;
  - m) Updates or revisions to the approved Sewage Disposal Facilities Operation and Maintenance Plan;
  - n) Updates or revisions to the approved Spill Contingency Plan;
  - o) Updates or revisions to the approved Solid Waste Disposal Facilities Operation and Maintenance Plan;
  - p) Updates or revisions to the approved Biotreatment Pad Operation and Maintenance Plan;
  - q) Updates or revisions to the approved Hazardous Waste Management Plan;
  - r) Tabular summaries of all data generated from the Stormwater Effluent Monitoring Program;
  - s) At each of the seven sampling locations for stormwater, provide trends of biological and heavy metal data collected in the Stormwater Effluent Monitoring Program (short term) and Surveillance Network Program monitoring station (long term);
  - t) Comparison of the Surveillance Network Program data to Water Licence regulated limits and sampling and analysis requirements;
  - u) The inclusion of all formal written correspondence between the Inspector and Licensee; and
  - v) Any other details on Water use or Waste disposal requested by the Board by November 1 of the year being reported.

## **Schedule 2 – Conditions Applying to Waste Disposal**

1. The Stormwater Management Plan, referred to in Part D, item 13, shall include, but not be limited to, the following:
  - a) Best management practices in order to address any potential issues reflected through the Stormwater Effluent Monitoring Program;
  - b) Commitment to long-term monitoring through the addition of strategic sampling locations within the Surveillance Network Program;
  - c) The continuation of monitoring for hydrocarbons as performed during the 2009 sampling program;
  - d) Commitment to analyze and report on best management practices for stormwater management which the Licensee intends to adopt along with any expansion to the Yellowknife stormwater system;
  - e) General discussion regarding back-up power to all lift stations and their implementation; and
  - f) Discussion on snow disposal outlining areas currently used or to be used for snow disposal, and the methods for managing drainage Water from the snow disposal area(s).
  
2. The Solid Waste Disposal Facilities Drainage Study shall include, but not be limited to, the following:
  - a) Conceptual model of leachate generation, surface Water flow, and groundwater flow;
  - b) Validation of the conceptual model of leachate generation, surface Water flow, and groundwater flow;
  - c) Recommended subsurface monitoring locations;
  - d) To the extent of being reasonably feasible, characterize the bedrock integrity, which includes the identification of permeability and/or fracturing;
  - e) Determine applicability of existing surveillance network program stations, and recommend new stations if the study determines existing stations are not adequately placed to monitor quality and quantity of all surface Water out points;
  - f) Determine a Water inflow and outflow budget to characterize the quantity and quality of leachate generated; and
  - g) To the extent of being reasonably feasible, determine the native ground elevations at the base of the Solid Waste Facilities.
  
3. The revised Fiddlers Lake Treatment System Plan shall include, but not be limited to the following:
  - a) Discussion on the triggers and thresholds that will be employed to determine when an upgrade to the Fiddler's Lake treatment system is required, which shall include, but not be limited to: consideration to influent loadings (volume and concentration); effluent water quality; effluent loadings to receiving water bodies; treatment time within the system, and time requirements to complete any studies or design that supports the upgrade;

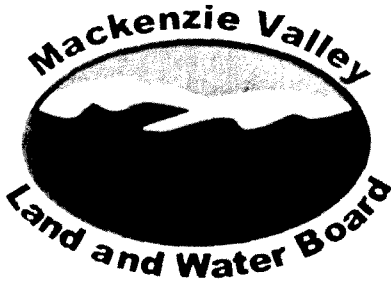
- b) Discussion of how ammonia and phosphorous treatment will be completed to meet the following discharge objectives: average concentration for ammonia of 5 mg/L (maximum of 10 mg/L), average concentration for phosphorous of 1 mg/L (maximum of 2 mg/L);
- c) Details, analysis of results, and recommendations from any wastewater treatment study, may include, but not limited to, a wetland performance study during cold weather and a lagoon pre-treatment study; and
- d) Details of a phosphorous study into the loadings into receiving water bodies and associated potential impacts.

### **Schedule 3 – Conditions Applying to Closure and Reclamation**

1. The Closure and Reclamation Plan shall include, but not be limited, to the following:
  - a) Contaminated site remediation;
  - b) Leachate prevention;
  - c) An implementation schedule;
  - d) Maps delineating all disturbed areas, borrow material locations, and site facilities;
  - e) Consideration of altered drainage patterns;
  - f) Type and source of cover materials;
  - g) Future area use;
  - h) Hazardous Wastes;
  - i) Reclamation of the existing Solid Waste Disposal Facilities cell;
  - j) Preliminary/conceptual information for the new Solid Waste Disposal Facilities cell;
  - k) Details of how leachate, surface, and subsurface runoff will be monitored and modeled during and after closure;
  - l) Leachate Modeling and Monitoring Plan and annual reporting details;
  - m) Landfill Gas Monitoring Plan; and
  - n) Annual reporting of the findings of the Landfill Gas Monitoring Plan.

#### **Schedule 4 – Conditions Applying to Operation and Maintenance**

1. The updated Operations and Maintenance Plan for the Sewage Disposal Facilities shall include, but not be limited to, the following:
  - a) Frequency of inspection of dams, dykes, and drainage courses;
  - b) Removal of floating materials for the Sewage Disposal Facilities;
  - c) Optimizing effluent discharge quality;
  - d) Runoff and drainage control within and around the facilities, and restoration of erosion;
  - e) Details that would trigger the necessity to develop a sludge management plan for the Sewage Disposal Facilities; and
  - f) Be submitted to the Board within 24 months of issuance of this Licence.
  
2. The updated Operations and Maintenance Plan for the Solid Waste Disposal Facilities shall include, but not be limited to, the following:
  - a) Treatment of contaminated drainage;
  - b) Prevention of windblown debris;
  - c) Segregation of domestic, metal, and recyclable waste materials;
  - d) Method and frequency of site maintenance, including burning where permitted;
  - e) Water and leachate management and monitoring;
  - f) Liner maintenance and inspection; and
  - g) Be submitted to the Board within 24 months of issuance of this Licence.
  
3. A plan for hazardous Waste management at the Solid Waste Disposal Facilities shall be completed in general accordance with Government of Northwest Territories, Department of Environment and Natural Resources 2009 document titled Developing a Community Hazardous Waste Management Plan and submitted to the Board within 12 months of issuance of this Licence.
  
4. The Operations and Maintenance Plan for the Biotreatment Pad shall include, but not be limited to, the following:
  - a) Management of future increases in soil volume;
  - b) Frequency and spatial details for soil sampling during treatment;
  - c) How leachate will be tested and analyzed;
  - d) How results will be reported;
  - e) How leachate will be discharged and stored; and
  - f) Be submitted to the Board within 12 months of issuance of this Licence.



**MACKENZIE VALLEY LAND AND WATER BOARD  
SURVEILLANCE NETWORK PROGRAM**

**Licensee:** City of Yellowknife  
**License Number:** MV2009L3-0007  
**Effective Date of Licence:** May 31, 2010  
**Effective Date of Surveillance Network Program (SNP):** May 31, 2010  
 (Amended September 1, 2011)

**A. Location and Description of Surveillance Network Stations**

<b>Station Number</b>	<b>Description</b>	<b>Sampling Frequency</b>
0032-1	Raw Water valve on Yellowknife River Water supply line in City Pumphouse #1. Sampling required.  Rationale: To determine the quantity of Yellowknife River Water for use as a municipal potable Water supply source.	No Water quality sampling required. Daily quantity of Water use to be monitored.
0032-2	Wet well Water intake in City Pumphouse #1 on Yellowknife Bay. Sampling required.  Rationale: To determine the quantity of the Yellowknife Bay Water for use as an emergency municipal potable Water supply source.	No Water quality sampling required.
0032-F1	Marker downstream of Lake F1 along the Fiddler's Lake Sewage Disposal System, approximately 1.5 kilometers upstream of Great Slave Lake (62°24'49" N. and 114° 44' 11.9" W).  Rationale: To monitor Water quality of Lake F1 and effectiveness of the Fiddler's Lake sewage disposal system.	Monthly Water quality sampling except during decant period. During decant sampled weekly and for four weeks following decant.



0032-F3	<p>Marker upstream of the outflow from Lake F3 of the Fiddler's Lake Sewage Disposal System (62°25' 24.8" N. and 114°39' 10" W). Sampling required.</p> <p>Rationale: Site of compliance. To monitor Water quality of lake F3 and to determine the effectiveness of the Fiddler's Lake Sewage Disposal System.</p>	<p>Monthly Water quality sampling except during decant period. During decant sampled weekly and for four weeks following decant. Sampled at spring break up and before freeze-up in fall for bioassay tests.</p>
0032-10	<p>Sewage effluent at the control structure located at lake F6.</p> <p>Rationale: To determine Sewage effluent quality prior to discharge to Fiddler's Lake sewage disposal system.</p>	<p>Monitoring Site. No Water quality sampling required for this Water Licence.</p>
0032-12	<p>Raw Water valve in City Pumphouse #2 on the Yellowknife River.</p> <p>Rationale: To determine the Water quality of the Yellowknife River prior to being pumped into the submarine line to Pumphouse #1.</p>	<p>Monitoring Site. No Water quality sampling required for this Water Licence.</p>
0032-13	<p>A point approximately 400 metres northwest of the Solid Waste Disposal Facilities above the confluence of an unnamed feeder creek.</p> <p>Rationale: To monitor Water quality associated with runoff and seepage from the Solid Waste Disposal Facility.</p>	<p>Active until replaced with 0032-13A.</p> <p>Water quality sampling twice each year during the months of June and September.</p>
0032-13A	<p>A point approximately 400 metres northwest of the Solid Waste Disposal Facilities that captures the drainage from the facility and drainage from the snow disposal area. SNP 0032-13A replaces SNP 0032-13.</p> <p>Rationale: To monitor Water quality associated with runoff and seepage from the Solid Waste Disposal Facility and snow disposal area.</p>	<p>Water quality sampling twice each year during the months of June and September.</p>

0032-14	<p>Upstream of culvert located on Hwy #4, upstream of fault and downstream of confluence of unnamed feeder creek.</p> <p>Rationale: To monitor Water quality associated with runoff and seepage from the Solid Waste Disposal Facility.</p>	<p>Water quality sampling twice each year during the months of June and September.</p>
0032-15	<p>Upstream of culvert on Ski Club access road, opposite the biathlon shooting range.</p> <p>Rationale: To monitor Water quality associated with runoff and seepage from the Solid Waste Disposal Facility.</p>	<p>Active until replaced with 0032-15A.</p> <p>Water quality sampling twice each year during the months of June and September.</p>
0032-15A	<p>West side of Hwy #4, across from SNP 0032-15. SNP0032-15A replaces SNP 0032-15.</p> <p>Rationale: To monitor Water quality associated with runoff and seepage from the Solid Waste Disposal Facility.</p>	<p>Water quality sampling twice each year during the months of June and September.</p>
0032-16	<p>Upstream of culvert on Hwy #3, opposite Jackfish Lake.</p> <p>Rationale: To monitor Water quality associated with runoff and seepage from the Solid Waste Disposal Facility.</p>	<p>Water quality sampling twice each year during the months of June and September.</p>
0032-17	<p>Effluent or drainage Water discharged from the Biotreatment Pad.</p> <p>Rationale: To monitor final effluent quality before discharge.</p>	<p>Water quality sampling required during discharge.</p>
0032-18	<p>Effluent/drainage Water collected from the compost facility.</p> <p>Rationale: To monitor final effluent quality before discharge.</p>	<p>Upon discharge of Water from the compost facility.</p>

**B. Sampling and Analysis Requirements**

1. Station Numbers 0032-F1 and 0032-F3 shall be sampled once monthly except during a decant. Water at Station Numbers 0032-F1 and 0032-F3 shall be sampled weekly during each decant and for a period of four weeks following each decant. All samples collected at Station Numbers 0032-F1 and 0032-F3 shall be analyzed for the following parameters:

<sup>3</sup> Nutrients	<sup>4</sup> Major ions
Faecal Coliform	Faecal Streptococci
Suspended Solids	Oil and Grease
<sup>2</sup> Field parameters	BOD <sub>5</sub>
CBOD	

2. Station Number 0032-F3 shall be sampled two times yearly at spring break-up and before freeze-up in the fall. The samples will be provided to an accredited laboratory for the purpose of performing a static pass/fail bioassay for both rainbow trout and *Daphnia magna* (per Environment Canada's Environmental Protection Series Biological Test Methods). If greater than 30 percent mortality occurs, the samples should be collected for LC<sub>50</sub> bioassay testing.
3. Water related to the Solid Waste Disposal Facility drainage basin at Station Numbers 0032-13A, 0032-14, 0032-15A, and 0032-16 shall be sampled twice each year during the months of June and September and analyzed for the following parameters:

Total Ammonia	Nitrate and Nitrite
Faecal Coliform	BOD <sub>5</sub>
Total Phenols	Oil and Grease
Total Mercury	<sup>1</sup> ICP-MS Metal Scan (Total)
<sup>2</sup> Field parameters	<sup>4</sup> Major Ions
methyl <i>tert</i> -butyl ether	Benzene
Toluene	Ethylbenzene
Xylene	
Total Petroleum Hydrocarbons - Fraction 1 (C6-C10) + Fraction 2 (>C10-C16) + Fraction 3 (>C16-C34) + Fraction 4 (>34)	

4. Station Number 0032-17 shall be sampled during discharge and analyzed for the following parameters:

<sup>1</sup> ICP-MS Metal Scan (Total)
<sup>2</sup> Field parameters
Benzene
Toluene
Ethylbenzene
Xylene
Total Petroleum Hydrocarbons - Fraction 1 (C6-C10) + Fraction 2 (>C10-C16) + Fraction 3 (>C16-C34) + Fraction 4 (>34)

5. Water related to the compost facility at Station Numbers 0032-18 shall be sampled upon discharge from the facility and analyzed for the following parameters:

Total Ammonia	Nitrate and Nitrite
Faecal Coliform	BOD <sub>5</sub>
Total Phenols	Oil and Grease
Total Mercury	<sup>1</sup> ICP-MS Metal Scan (Total)
<sup>2</sup> Field parameters	<sup>4</sup> Major Ions
methyl <i>tert</i> -butyl ether	Benzene
Toluene	Ethylbenzene
Xylene	
Total Petroleum Hydrocarbons - Fraction 1 (C6-C10) + Fraction 2 (>C10-C16) + Fraction 3 (>C16-C34) + Fraction 4 (>34)	

6. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of Standard Methods for the Examination of Water and Wastewater or by such other methods approved by the Analyst.
7. All analyses shall be performed in a laboratory approved by the Analyst.

**Notes:**

<sup>1</sup>ICP-MS Metal Scan (Total) shall include at a minimum, the following parameters:

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

<sup>2</sup>Field parameters include the following measurements:

pH	Temperature
Conductivity	Dissolved Oxygen

<sup>3</sup>Nutrients include the following parameters:

Total Ammonia	Total Phosphorus
Nitrate-Nitrogen	Ortho Phosphorus
Total Dissolved Phosphorus	Total Organic Carbon
Total Kjeldahl Nitrogen	

<sup>4</sup>Major ions include the following parameters:

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

**C. Flow and Volume Measurement Requirements**

1. The Licensee shall measure and record the following:
  - a) The daily quantity of Water pumped from the Yellowknife River at Station Number 0032-1;
  - b) The daily quantity of Water pumped from Yellowknife Bay at Station Number 0032-2 in cubic metres;
  - c) The weekly flow of Sewage effluent discharged from the control structure at Station Number 32-10;
  - d) The monthly quantity of Waste discharged from Lift Station Numbers 5 and 6; and
  - e) The lagoon elevations and design elevation for dams.

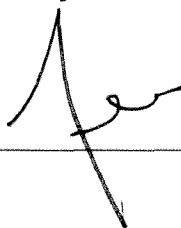
**D. Dam and Dyke Monitoring**

1. The dams and dykes of the Sewage Disposal Facilities shall be inspected once every two years during the summer season by an Engineer to determine the stability of the structures.
2. The dykes constructed to divert the drainage flow from Lake F9 and Unnamed Lake into the Grace Lake system shall be inspected every four years by an Engineer, at a time of high water level, to determine the stability of the structures.
3. Within 60 days of completion of the geotechnical inspection, the Licensee shall submit a cover letter outlining an implementation schedule for the Engineer's recommendations.

**E. Reports**

1. The Licensee shall submit quarterly reports for January through March, April through June, July through September, and October through December. These quarterly reports shall contain all of the information generated by Parts A, B, C, and D of the Surveillance Network Program and shall be submitted within 30 days of the end of the quarter being reported.

**Mackenzie Valley Land and Water Board**



**Chair**



**Witness**

**Annex A Schedule**

*Supplemental information to be submitted by Licensee as required through Licence Conditions*

<b>Licence Condition</b>	<b>Report Title/Require Action</b>	<b>Timeline for Submission</b>
<b>B.3</b> (Schedule 1, item 1)	Annual Report	March 31 each year
<b>B.8</b>	Identify SNP Station(s) with signage	At all times
<b>B.9</b>	Re-locate SNP 0032-13 and 0032-15 and provide coordinates to the Board	By September 1, 2010
<b>B.10</b>	Identify Water Supply and Waste Disposal Facilities with signage	At all times
<b>B.11</b>	Copies of Water Licence in City of Yellowknife office(s), the Solid Waste Disposal Facilities, and the Water Supply Facility	At all times
<b>D.3</b>	Advise Inspector and notify the Board prior to decant of Sewage Disposal Facility	At least 10 days before decant begins
<b>D.9</b>	Inspection of constructed berms, dykes, and dams within the Waste Disposal Facilities and Water Supply Facilities	Once every 2 years with a report to be submitted to the Board within 60 days of the inspection
<b>D.10</b> (Schedule 2, Item 1)	Stormwater Management Plan	Within 15 months of issuance of this Water Licence

<b>D.11</b>	Design Report	90 days prior to the construction of a new cell at the Solid Waste Disposal Facility
<b>D.12</b>	Operations and Maintenance Manual	60 days prior to operation of a new landfill cell
<b>D.13</b>	As built plans and Record Drawings	90 days of completion of construction
<b>D.14</b> (Schedule 2, Item 2)	Solid Waste Disposal Facility Drainage Study	Within 18 months of issuance of Water Licence
<b>D.15</b> (Schedule 2, Item 3)	Revised Fiddlers Lake Treatment System Plan	March 31, 2012
<b>D.16</b>	Sewage Disposal Facility Design Report	60 days prior to any upgrading
<b>D.17</b>	As built plans and Record Drawings for Sewage Disposal Facilities	Within 90 days of completion of any upgrades
<b>D.18</b>	Current Record Drawings of the Sewage Disposal Facilities	Within 6 months of issuance of this Water Licence
<b>D.19</b>	Sewage Disposal Facility reporting	Within 18 months of issuance of Water Licence
<b>D.20</b>	Year long study of sewage effluent and Report	March 31, 2012
<b>D.21</b>	BOD and CBOD Study	August 31, 2014



<b>D.22</b>	Study on the capabilities of the effluent discharge area	March 31, 2012
<b>D.23</b>	Metal concentrations in surface water for Solid Waste Disposal Facility Study	March 31, 2013
<b>PART E</b>	Modifications to Water Supply Facilities and Waste Disposal Facilities	Various – refer to Water Licence
<b>F.1</b> (Schedule 3, Item 1)	Interim closure and reclamation plan for the Solid Waste Disposal Facility	6 months prior to closure of the current Solid Waste Facility Disposal cell
<b>F.2</b> (Schedule 3, Item 1)	Closure and Reclamation Plan	At least six (6) months prior to abandoning any Waste Disposal Facilities
<b>G.1</b>	Construction of any dams, dykes or control structures	Prior to construction
<b>G.3</b>	As-built plans and Record Drawings	Within 90 days of completion
<b>H.1</b> (Schedule 4)	Updated plans for the Operation and Maintenance of the Waste Disposal Facilities	Various – refer to Schedule 4
<b>I.1</b>	Spill Contingency Plan in accordance with "Indian and Northern Affairs Canada's 2007 Guidelines for Spill Contingency Planning"	Within 6 months of issuance of Water Licence
<b>I.2</b>	Review of Spill Contingency Plan and submission of updates/revision	Annually – Annual Reporting Requirement

**General Procedures for the Administration of Licences  
Issued Under the *Northwest Territories Waters Act*  
in the Northwest Territories**

1. At the time of issuance, a copy of the Licence is placed on the Public Registry in the office of the Mackenzie Valley Land and Water Board (MVLWB or the Board) in Yellowknife and is then available to the public.
2. To enforce the terms and conditions of the Licence, the Minister of Indian Affairs and Northern Development has appointed Inspectors in accordance with subsection 35(1) of the *Northwest Territories Waters Act*. The Inspectors coordinate their activities with staff of the MVLWB. The Inspector responsible for Licence MV2009L3-0007 is located in Yellowknife, NT.
3. To keep the MVLWB and members of the public informed of the Licensee's conformity to the Licence's conditions, the Inspectors prepare reports which detail observations on how each item in the Licence has been met. These reports are forwarded to the Licensee with a covering letter indicating which actions, if any, should be taken. The Inspection Reports and Cover Letters are placed on the Public Registry, as are any responses received from the Licensee pertaining to the Inspection Reports. It is therefore of prime importance that you react in all areas of concern regarding all inspection reports so that these concerns may be clarified.
4. It is the responsibility of the Licensee to apply to the MVLWB for a new licence. The past performance of the Licensee, new documentation and information, and points raised during a public hearing, if required, will be used to determine the terms and conditions of any new licence. Please note that if the Licence expires and another has not been issued, then water and waste disposal must cease, or you, the Licensee, would be in contravention of the *Northwest Territories Waters Act*. It is suggested that an application for a new licence be made at least eight months in advance of the Licence expiry date.
5. If, for some reason, Licence MV2009L3-0007 requires amendment, a public hearing may be required. You are reminded that applications for amendments should be submitted as soon as possible to provide the MVLWB ample time to complete the amendment process. The process may take up to six months or more depending on the scope of the amendment requested.

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6. Specific clauses of your Licence make reference to the Board, Analyst or Inspector. The contact person, address, phone, and fax number of each is:

**Mackenzie Valley Land and Water Board:**

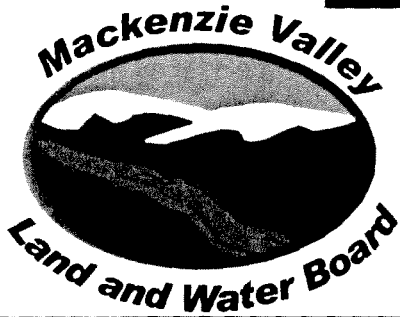
Public Registry Clerk  
Mackenzie Valley Land and Water Board  
7th Floor – 4922 - 48 Street  
P.O. Box 2130  
YELLOWKNIFE NT XIA 2P6  
Phone (867) 669-0506  
Fax (867) 873-6610

**Analyst:**

Analyst  
Water Laboratory  
Indian and Northern Affairs Canada  
P.O. Box 1500  
4601 - 52nd Avenue  
YELLOWKNIFE NT XIA 2R3  
Phone (867) 669-2780  
Fax (867) 669-2718

**Inspector:**

Water Resource Officer  
Indian and Northern Affairs Canada  
South Mackenzie District  
16 Yellowknife Airport  
YELLOWKNIFE NT X1A 3T2  
Phone (867) 669-2768  
Fax (867) 669-2720



**Mackenzie Valley Land and Water Board**  
**7th Floor - 4910 50th Avenue**  
**P.O. Box 2130**  
**YELLOWKNIFE NT X1A 2P6**  
**Phone (867) 669-0506**  
**FAX (867) 873-6610**

**Reasons for Decision**

<b>Preliminary Screener:</b>	Mackenzie Valley Land and Water Board
<b>Reference/File Number:</b>	MV2009L3-0007
<b>Applicant:</b>	City of Yellowknife
<b>Project:</b>	Use of Water and Disposal of Waste for Municipal Purposes at the City of Yellowknife, Northwest Territories

**Decision from Mackenzie Valley Land and Water Board Section 103 Panel Meeting of**

**April 1, 2010**

**Reasons for Decision**

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Issued pursuant to section 26 of the *Northwest Territories Waters Act* (NWTWA).

**Background and Regulatory History**

The City of Yellowknife (the City) was first issued a Water licence by the Northwest Territories Water Board under the *Northern Inland Waters Act* (NIWA).

On December 31 2001, the last Water Licence issued by the Northwest Territories Water Board to the City of Yellowknife expired. An application for a renewal of Type A Water Licence N1L4-0032 was submitted to the Mackenzie Valley Land and Water Board on December 20, 2000 (revised January 10, 2001). The application underwent a preliminary screening in July of 2001. A hearing was held on October 4, 2001 and Water Licence N1L3-0032<sup>1</sup> was issued to the City of Yellowknife for a period of eight years from May 31, 2002 to May 30, 2010.

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<sup>1</sup> Note the original Water Licence issued in October of 1992 had the number N1L4-0032 under the *Northern Inland Waters Act*. The next renewal of the Licence resulted in the '4' being changed to a '3' (N1L3-0032) as under the NWTWA in which a '3' reflects a municipal undertaking. This is as reported in the Staff Report dated June 29, 2001 prepared by Regulatory Officer Darren Campbell.

## **Current Renewal 2009-2010**

An application for the renewal of a type A Water licence from the City of Yellowknife was received at the Mackenzie Valley Land and Water Board (MVLWB or the Board) office on July 10, 2009. This licence application was given a new file number, MV2009L3-0007. The application was deemed complete on July 20, 2009 and was then circulated to the distribution list (which includes First Nations, communities, government agencies, and other organizations) for review and comment. At this time, parties were also asked to comment on the issue of exemption from preliminary screening according to paragraph 2 of Part 1, Schedule 1 of the Exemption List Regulations annexed to subsection 143(1) of the MVRMA. On November 5, 2009 the Board confirmed that application MV2009L3-0007 was exempt from preliminary screening.

In order to discuss and attempt to resolve technical issues prior to the public hearing, a technical session was held on November 12, 2009 at the Yellowknife Inn. The technical session itself was brief, beginning at 9 a.m. and lasting for approximately two hours. Following an overview presentation by the City of Yellowknife, topics discussed were the Fiddler's Lagoon sewage system, the Solid Waste Disposal Facility, storm Water, and management plans. Participants included Indian and Northern Affairs Canada (INAC), Environment Canada (EC), North Slave Métis Alliance (NSMA), City of Yellowknife, Yellowknives Dene First Nation (YKDFN), and the Board's consultant, Arktis Solutions Inc. (Arktis).

A total of four written interventions were received on the intervention due date of November 27, 2009. These were from INAC, EC, Government of the Northwest Territories Environment and Natural Resources (GNWT-ENR), and the NSMA. A pre-hearing conference was held on December 15, 2009 at the office of the MVLWB. In attendance were representatives from EC, NSMA, and the City of Yellowknife.

The Board scheduled the public hearing for January 19 and 20, 2010 to be held at the Explorer Hotel, Yellowknife, Northwest Territories. Notice of a public hearing was provided in accordance with subsection 23(2) of the NWTWA in *News/North* on November 23, 2009 and in the *Yellowknifer* on January 13, 2010. An evening session was held to allow members of the public to speak at the hearing.

Only one day, January 19, 2010, was necessary for the hearing. The proceedings began at 1 p.m. with the opening remarks from the Chair followed by a presentation on its application from the City of Yellowknife. Other presenters were EC, GNWT-ENR, INAC, and NSMA. There was also a presentation from a member of the public. At 7 p.m. the Board and other participants gathered and waited until 7:30 p.m. for members of the public to

register to speak. No one registered so the parties present proceeded with closing comments. The hearing was adjourned shortly thereafter.<sup>2</sup>

The draft Water Licence was distributed on February 12, 2010 with a comment deadline of March 4, 2010. Comments on the draft Water Licence were received from the City, Department of Fisheries and Oceans, INAC, GNWT-ENR, EC, and the NWTMN.

## **Decision**

The Mackenzie Valley Land and Water Board has decided to issue Water Licence MV2009L3-0007 (the renewal of Licence N1L3-0032) subject to the terms and conditions contained therein. The Licence has been issued under separate cover. The reasons for the Board's decision are described below under the headings contained in the Licence.

The Licence contains the conditions that the Board feels are necessary to protect the environment, conserve the Water resources, and provide appropriate safeguards in respect of the Licensee's use of Waters and deposit of Wastes.

## **Requirements of Section 14 of the NWTWA**

### **Existing Licensees**

After reviewing the submissions filed on the public registry and made at the public hearing, the Board is satisfied that with respect to paragraph 14(4)(a) of the NWTWA, the granting of the Licence to the Applicant would not adversely affect, in a significant way, any existing Licensee, providing the conditions of the Licence are met. There are no other Applicants with precedence.

### **Existing Water Users**

Paragraph 14(4)(b) of the NWTWA prohibits the issuance of a licence unless the Board is satisfied that appropriate compensation has been or will be paid by the Applicant to members of the classes of Water users and persons listed in that paragraph who have claimed compensation within the period specified in the notice of the application.

The NSMA gave notice of a claim for compensation under Paragraph 14(4)(b) of the NWTWA.<sup>3</sup> However, the written submissions of the NSMA did not set out the details of either the damages or the individual Water users affected. Further, when the NSMA was questioned at the public hearing, evidence of damage to specific individuals was not available. Therefore, this claim put forward by the NSMA was not complete. The NSMA has not met its burden of proof to

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<sup>2</sup> Transcripts from both the November 12, 2009 technical session and the January 19, 2010 hearing are available on the Board's website at [www.mvlwb.ca/mv](http://www.mvlwb.ca/mv) or in the registry at the Board's office.

<sup>3</sup> Notification of compensation was given in correspondence dated August 27, 2009, September 30, 2009, and the written intervention submitted on November 27, 2009.

convince the Board that compensation should be paid, therefore the claim is dismissed.

MS. JENNIFER BAYLY-ATKIN: Jennifer --Jennifer Bayly-Atkin, Board Counsel. I have some questions in relation to the NSMA's intervention on the issue of water compensation. And the first question is: There are certain parameters for a water compensation claim being made under the NWT Waters Act, under Section 14(4)(b), and my question is: There was no information in NSMA's intervention related to specific users that NSMA was representing. I'm wondering if this is still the case. Are there any specific named persons that have designated NSMA as their representatives to make this claim?

(BRIEF PAUSE)

MS. SHERYL GRIEVE: When applying for membership to the NSMA, because the purpose of NSMA is to be a land claim negotiating organization, every member has signed a release, or a declaration I should say, appointing NSMA as their spokesperson in -- with regards to their aboriginal Treaty rights and rights, Metis rights. So the whole community, every single member, is an existing water user and the NSMA is the entity making the claim.

MS. JENNIFER BAYLY-ATKIN: Jennifer Bayly-Atkin. But for this specific claim made for this in the relation to the specific licence, have there been any designations by specific users who say that they are-- they have been adversely affected or could be adversely affected by this issuance of this water licence?

MS. SHERYL GRIEVE: That would be to obtain those declarations or whatever affidavits might be required would be part of the process of consultation that we do not have capacity to do.

MS. JENNIFER BAYLY-ATKIN: Jennifer Bayly-Atkin again. And the next question I have is again in relation to the water compensation claim. In your intervention materials there was no specific evidence of adverse effect, as I was mentioning

before, or whether the adverse effect had caused specific damages to individuals. I was wondering if you could address that, whether you have evidence in relation to that issue?

MS. SHERYL GRIEVE: There -- there was a list of damages that -- that members were experiencing, whether a water user has to be an individual or not, I am not sure because other licensees can be wa [sic] -- existing water users as well, and they're not individuals. So I'm I'm not too sure whether we need to say which damage was experienced by which individual or whether it could be a group of individuals sharing rights and experiencing common damages.

MS. JENNIFER BAYLY-ATKIN: Thank you. Jennifer Bayly-Atkin. For the purposes of the NWT Waters Act, you do need evidence of damage to specific individuals, and that's what I was asking for, whether you had that, other than what was submitted into -- in your intervention already.

MS. SHERYL GRIEVE: Information does exist. We haven't -- we haven't submitted it and we haven't gathered it. It may -- we may have some in archived files. There may already be plenty of it and probably is plenty of it on the public registry for other licences and other issues. Gathering it together takes resources, which we don't have.

MS. JENNIFER BAYLY-ATKIN: Jennifer Bayly-Atkin. Thank you very much, Mr. Chair. Those are my questions.<sup>4</sup>

Provided that compliance with the conditions of the Licence is achieved, the Board does not believe that any users or persons listed in paragraph 14(4)(b) of the NWTWA will be adversely affected by the use of Waters or the deposit of Waste proposed by the Applicant.

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<sup>4</sup> January 19, 2010, Public Hearing, City of Yellowknife Type A Water Licence Application for City of Yellowknife, transcript, page 135-137.



### **Water Quality Standards**

Insofar as subparagraph 14(4)(c)(i) of the NWTWA is concerned, the Board is of the view that compliance with the conditions of the Licence will ensure the Waste produced by this municipality will be treated and disposed of in a manner which will maintain Water quality consistent with applicable standards.

### **Effluent Quality Standards**

Consistent with subparagraph 14(4)(c)(ii) of the NWTWA, the Board is satisfied that the effluent standards it has developed and set out in the Licence as conditions are acceptable and will protect the receiving Waters and environment. These are further discussed below under Part D: Conditions Applying to Waste Disposal.

### **Financial Responsibility of the Applicant**

The Board must satisfy itself of the financial responsibility of the Applicant under paragraph 14(4)(d) of the NWTWA before it can issue the Licence. The project will be undertaken by the City of Yellowknife. The Board is confident that the City of Yellowknife is capable of meeting the financial obligations set out in the NWTWA and the Licence concerning the use of Water and deposit of Waste for municipal purposes and any restoration and/or maintenance work that results from closure of the facilities at the City of Yellowknife.

### **Requirements of Subsection 15(2) of the NWTWA**

The Board is convinced that adherence to the terms and conditions it has imposed on the Applicant in the Licence will ensure that any potential adverse effects on other Water users which might arise as a result of the issuance of the Licence are minimized.

### **Water Licence MV2009L3-0007 Terms and Conditions**

#### **Licence Term**

The City had originally applied for a term of 15 years for this Licence. In correspondence dated January 7, 2010 to Environment Canada's written intervention, the City stated that it would be willing to reduce the preferred term to 12 years. Much of the evidence presented on the length of the Licence was not supportive of the issuance of the Licence for a 15-year term. The Board has considered the interventions and the request by the City and has decided to approve a 12-year term.

#### **Licence Conditions**

The conditions set forth in the Water Licence have been imposed in order to address the Board's statutory responsibilities and those concerns which arose during the regulatory process. These reasons address the more significant of those concerns.

## **Part A: Scope and Definitions**

Upon review of the application and evidence in the public registry, the Board has determined that the scope of the undertaking covered by the Licence should remain the same as in the previous Water licences issued to the City of Yellowknife. That is: "This Licence entitles the City of Yellowknife to use Water and dispose of Waste for municipal purposes at the City of Yellowknife, Northwest Territories, located at: 62°28' N; 114°26' W".

The definitions section, for the most part, contains standard wording as per previous Water licences issued by the Board. Any changes made were done to ensure consistency with other recent Water licences.

## **Part B: General Conditions**

The General Conditions section stipulates matters regarding compliance and conformity with the MVRMA and the NWTWA. There are also conditions in this section which pertain to the Surveillance Network Program, measuring devices, signage, and the location of copies of this Water Licence. These are standard and historic conditions found in Water licences issued by the Board.

Condition B.3, in conjunction with Schedule 1, item 1, sets out the information to be included in the Annual Report submitted to the Board on or before March 31. The Board uses annual reports to monitor compliance with Water use, Waste disposal, and Water quality. Having a clear and accurate description of activities allows the Board to more effectively regulate the licenced undertakings. This includes modifying the Surveillance Network Program where appropriate and necessary.

Much of the information requested in Schedule 1, item 1 was part of the previous Water Licence, N1L3-0032. There has also been the addition of requirements to provide updates to the various plans necessary under the current Licence.

Schedule 1, item 1(i) is a recommendation from GNWT-ENR<sup>5</sup> to which the City has agreed<sup>6</sup>. The Board has adopted this recommendation.

Schedule 1, item 1(j) is a recommendation from INAC<sup>7</sup> to which the City has agreed<sup>8</sup>. The Board has adopted this recommendation.

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<sup>5</sup> November 27, 2009 Northwest Territories Environment and Natural Resources, re City of Yellowknife Water Licence Renewal MV2009L3-0007 Submission of Written Intervention, item 5, page 5.

<sup>6</sup> January 7, 2010 City of Yellowknife, re Water Licence Renewal Application – MV2009L3-0007 Response to GNWT Department of Environment and Natural Resources (ENR) Intervention.

<sup>7</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #9, page 5.

<sup>8</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 3.

Schedule 1, item 1(k) is from the previous approval of the plan for the construction of the Biotreatment Pad<sup>9</sup>.

B.9 This condition deals with the relocation of SNP Stations 0032-13 and 0032-15. The relocation of these sites was brought forward by INAC in its written intervention dated November 27, 2009, recommendations #7 and #8. The City agreed with these recommendations.<sup>10</sup> It is anticipated that relocation of these sites will improve monitoring results. The Board has adopted this recommendation.

### **Part C: Conditions Applying to Water Use**

C.1 This is a standard condition that states where Water may be obtained. The Board included the phrasing “as described in the Water Licence Application received by the Board on July 10, 2009” as this would be the most recent description of the Water Supply Facilities.

C.2 The annual quantity of Water not to be exceeded (3,600,000 cubic metres) was obtained by examining the table of Water flow projections presented in the Supplementary Report.<sup>11</sup> The Board has adopted the number as indicated for the year 2022.

C.3 The Licence calls for a maximum use of 575,000 cubic meters per month; this is the historic Water allowance. No suggestion was made during the renewal process that this volume should be changed, and it is believed that limiting Water use to this amount adequately protects the environment.

C.4 This condition was recommended by the Department of Fisheries and Oceans (DFO) in its October 2, 2009 comments on the Water Licence Renewal Application which states:

To reduce potential impacts to fish and fish habitat we are recommending the following mitigation measures be included in the Water Licence Conditions:

1. The Freshwater Intake End-of-Pipe Fish Screen Guideline (DFO 1995) (available at [www.dfo-mpo.gc.ca/Library/223669.pdf](http://www.dfo-mpo.gc.ca/Library/223669.pdf)) should be applied to all water intakes. To prevent the entrainment of fish, the mesh size

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<sup>9</sup> June 28, 2006 Letter from MVLWB to the City titled City of Yellowknife, Solid Waste Facility Application for Biotreatment Pad for Contaminated Soil Approved, condition b.

<sup>10</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 2.

<sup>11</sup> City of Yellowknife, June 2009, City of Yellowknife Water Licence Renewal Application Supplementary Report, page 17. Note that the number was rounded up to account for usage and population growth calculation variations.

should not exceed 2.54 mm. The intake should not disturb the substrate and the screen should be cleaned regularly.

The Board has decided to include this condition as it is a historic and standard condition present in most, if not all, current Water licences.

#### **Part D: Conditions Applying to Waste Disposal**

D.1 This is a historic condition regarding where piped and pumpout Sewage should be directed.

D.2 The Board has prescribed effluent Water quality limits to be achieved at the discharge point to protect aquatic habitat and Water uses in the receiving Waters. Water quality concerns and information were received through review comments during initial application review periods, amendments, and renewals of this Type A Water Licence.

Effluent quality criteria for discharges have been reviewed and deemed sufficiently stringent and technically achievable for preventing adverse effects on the receiving environment.

**Faecal Coliforms** – The Board had previously established a maximum Average Concentration of 1000 FC per 100 ml and a Maximum Concentration in any grab sample of 2000 FC per 100 ml for Faecal Coliform bacteria. The 1000 FC per 100 ml was derived from Canadian Council of Ministers of the Environment (CCME) “Canadian Water Quality Guidelines for Recreational Waters” (CCME 1999). These effluent quality criteria were intended to protect the most sensitive Water use likely to occur in the receiving waterbody, namely non-contact or secondary Water use (i.e. fishing, boating).<sup>12</sup>

Health Canada’s “Guidelines for Canadian Recreational Water Quality” were updated in 2002 and recommend that E.Coli should not exceed 2000 E.Coli/L; if 90 percent of the faecal coliforms are E.Coli, either faecal coliforms or E.Coli may be determined. Assuming this to be the case, the Health Canada faecal coliform effluent quality recommendation would be 2,000 FC/L (=200 FC/100 mL), which is about two orders of magnitude more stringent than the previous Water Licence’s limit of 10,000 FC/L. The Board has decided to use the more recent Health Canada guidelines in the Licence.

**Biological Oxygen Demand (BOD<sub>5</sub>)** – The Board had previously established a maximum Average Concentration of 20 mg/L BOD<sub>5</sub> and a maximum grab sample concentration of 30 mg/L BOD<sub>5</sub> for Sewage effluent. These effluent quality criteria were loosely based on the “Northwest Territories Water Board Guidelines for Discharge of Treated Municipal Water”. These criteria were set during the initial Water licencing process in 2001-2002 and were intended to

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<sup>12</sup> Taken from “Reasons for Decision, Water License N1L3-0032 (Type “A”)", dated April 5, 2002.

protect the receiving Water body from harm due to the introduction of oxygen consuming materials.

**Total Suspended Solids (TSS)** – The Board had previously established a maximum Average Concentration of 20 mg/L TSS and a maximum concentration in any grab sample of 40 mg/L TSS for Sewage effluent. These effluent quality criteria were set during the initial Water licencing process in 2001-2002.

In setting these effluent quality criteria, the Board recognized that elevated levels of TSS could adversely affect fish and other aquatic organisms, with the severity of the effect dependant on both the concentration of TSS and the duration of exposure to TSS. The effluent quality criteria were established to ensure that the Water quality objectives could be met in the discharge and are consistent with other Water licences. These values were derived, in part, from the “Canadian Water Quality Guidelines” (CCME 1999) for TSS.

Currently, the CCME “Municipal Wastewater Strategy for the Treatment of Municipal Wastewater Effluent” uses CBOD as an indicator for the quality of municipal wastewater. INAC suggested that the City include CBOD (in addition to BOD) as a parameter to be sampled for a minimum of three years. This helps maintain the existing long-term BOD dataset collected by the City and identify a relationship between BOD and CBOD. After three years, the City is to submit the findings of a trend analysis to the Board for approval (condition D.21).<sup>13</sup> It is expected that this will provide northern-specific values to use for CBOD.

The Board has decided to maintain these effluent quality criteria values as per the previous Licence. Upon the submission of, and following review of the study findings for CBOD and BOD, effluent quality criteria can be re-visited.

**Oil and Grease** – This is a historic effluent quality criteria value.

**Acute Toxicity** – The Board had previously established the effluent quality criterion for effluents to be not acutely toxic. Previously prescribed bioassays employed rainbow trout and *Daphnia magna* to achieve 100 percent survival for whole effluent samples three times per year.

At the hearing, it was concluded that a 70 percent survival rate be incorporated into the Water License.

MR. JAMIE VANGULCK: Thank you, Mr. Chair. A couple more questions, on a different topic though.

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<sup>13</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #6, page 4.

The Proponent recommended a 70 percent survival rate for bioassay testing to be incorporated in the water licence. What value for survival rate does Environment Canada recommend? Is the 70 percent acceptable? And I -- I noticed that in your presentation you gave a range, so I guess we're looking for -- for a specific number.

MS. ANNE WILSON: Anne Wilson. 70 percent would be acceptable.<sup>14</sup>

Also, it was suggested by EC at the public hearing that the bioassay test method be a static pass/fail.

MR. JAMIE VANGULCK: Yes, thank you, Mr. Chair. In Environment Canada's intervention, it does not mention the pass/fail test for bioassay testing, but in your response you did mention the pass/fail test for bioassay testing. So could you please clarify what -- what the test method is that Environment Canada is recommending for -- for bioassay testing.

MS. ANNE WILSON: It's Anne Wilson. We do recommend the pass/fail bioassay test as opposed to the LC50. The pass/fail requires only one (1) sample, and it's a quick test with 100 percent effluent.

THE CHAIRPERSON: Okay, thank you. Does the City want to respond to Environment Canada?

MR. DENNIS KEFALAS: Thank you, Mr. Chair. Dennis Kefalas of the City of Yellowknife. We'll have that chance to review what the testing requires and the parameters involved in the testing before we can make a -- or before we can comment.

THE CHAIRPERSON: Okay.<sup>15</sup>

The City responded via undertaking #3 that they preferred to have the LC<sub>50</sub> testing.<sup>16</sup> However, the Board has decided to incorporate EC's recommendation of a static pass/fail bioassay test with 70 percent survival rate

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<sup>14</sup> January 19, 2010, Public Hearing City of Yellowknife Type A Water Licence Application for City of Yellowknife, transcript, page 74.

<sup>15</sup> Public Hearing, Transcript, page 81 and 82.

<sup>16</sup> January 25, 2010, City of Yellowknife, Re: Water Licence Renewal Application MV2009L3-0007 Undertakings from Public Hearing.

considered a pass as this test is less complicated and more cost effective for the City.

Regarding the use of a static LC<sub>50</sub> bioassay, as long as the tests are continuing to pass, [which the City does regularly pass] the LC<sub>50</sub> test does not provide any additional information, but does incur significantly higher costs and requires larger sample volumes. EC recommends the pass/fail test be used, with a “fail” (i.e. less than 70% survival) triggering an LC<sub>50</sub> test.<sup>17</sup>

The Surveillance Network Program portion of the Water Licence, Part B, item 2, further defines bioassay testing by specifically stating that “If greater than 30 percent mortality occurs, the samples should be collected for LC<sub>50</sub> bioassay testing”.

**pH** – This is a historic condition to ensure the Waters discharged from the Sewage Treatment Facilities do not become excessively acidic or basic.

Conditions D.3 – D.7 are standard and historic conditions.

- D.8 The Board has established soil quality criteria for the final treatment of contaminated soil based on the GNWT “Guideline for Contaminated Site Remediation”. This guideline describes the process that is used to manage (e.g. identify, assess, remediate) contaminated or potentially contaminated sites on Commissioner’s Land including private land within municipalities. The Board recognizes that the Biotreatment Pad has been established in the City’s Solid Waste Disposal Facilities, and the treated soil will be used as cover. As such, the Board has chosen industrial criteria for the final remedial standard. The Board believes this will ensure adequate protection of the environment within this setting.
- D.9 This condition, requesting that an Engineer inspect the dams, dykes, and berms within the Waste Disposal Facilities and Water Supply Facilities once every two years, helps to assure the Board that the overall integrity of these structures is being maintained, and that there is a plan for dealing with problems.
- D.10 This condition, in conjunction with Schedule 2, requires the submission of a stormwater management plan. The previous Water Licence, N1L3-0032, also contained a similar condition (Part D, item 10). In December of 2008 a stormwater management plan was submitted to the Board. This plan was not approved by the Board<sup>18</sup>. During the current renewal

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<sup>17</sup> March 4, 2010, Environment Canada Draft Water Licence Review Comments.

<sup>18</sup> May 7, 2009, MVLWB, Water Licence Plan Decision – Municipal Stormwater Management Plan and 2009 Stormwater Effluent Monitoring Program.

process, INAC<sup>19</sup> recommended that the City submit an updated plan addressing the concerns from this 2009 review period and containing the items as outlined in Schedule 2, item 1. The City agreed to submit a revised plan to the Board<sup>20</sup>. The Board has adopted this recommendation for submission of an updated plan and incorporated the items as outlined in INAC's intervention<sup>21</sup> in the Licence. There is also a requirement for a discussion on snow disposal in this plan. To include snow disposal as part of this plan rather than on its own was suggested by the City<sup>22</sup> and adopted by the Board.

- D.11 This is a standard condition requiring that the proper documents be submitted to the Board 90 days prior to the construction of a new landfill cell at the Solid Waste Disposal Facility. This provides the Board with the satisfaction that new landfill cells have been approved by an Engineer and allows time for review.
- D.12 As per Recommendation #15 from INAC<sup>23</sup>, to which the City agreed<sup>24</sup>. The Board has adopted this recommendation.
- D.13 As per Recommendation #14 from INAC<sup>25</sup>, to which the City agreed<sup>26</sup>. The Board has adopted this recommendation. This is a standard condition so up-to-date Record Drawings of Solid Waste Disposal Facilities can be provided to the Board and filed on the Registry. This provides the Board with the satisfaction that all Facilities have been approved by an Engineer.

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<sup>19</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #16, page 10.

<sup>20</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 4.

<sup>21</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #16, page 10.

<sup>22</sup> March 3, 2010 City of Yellowknife Comments on Draft Water Licence, page 3.

<sup>23</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #15, page 9.

<sup>24</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 4.

<sup>25</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #14, page 8.

<sup>26</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 4.



- D.14 This condition and corresponding Schedule 2, item 2 is included as per recommendations from GNWT-ENR<sup>27</sup> and EC<sup>28</sup> to which the City agreed<sup>29</sup>. The Board has adopted these recommendations.
- D.15 As per recommendations from EC<sup>30</sup>. The Board has adopted these recommendations.
- D.16 This is a standard condition requiring that the proper documents be submitted to the Board prior to any upgrades at the Sewage Disposal Facilities.
- D.17 This is a standard condition requesting that the City provide the Board with Record Drawings of any upgrades to the Sewage Disposal Facilities. This gives the Board the satisfaction that all facilities have been approved by an Engineer.
- D.18 Condition requesting the City provide to the Board up-to-date Record Drawings of the Sewage Disposal Facilities. Those filed with the application are in the vicinity of 20 years old, and the Board concludes that current Record Drawings are required.
- D.19 As per Recommendation #2 from INAC<sup>31</sup>, to which the City agreed<sup>32</sup>. The Board has adopted this recommendation. The submission of this report will provide information on algal blooms and preventive measures.
- D.20 As per Recommendation #3 from INAC<sup>33</sup> to which the City agreed<sup>34</sup>. The Board has adopted this recommendation. This study will provide information on effluent composition and will further assist in Sewage Disposal Facility management.

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<sup>27</sup> November 27, 2009, GNWT-ENR, City of Yellowknife Water Licence Renewal MV2009L3-0007 Submission of Written Intervention, page 2.

<sup>28</sup> November 27, 2009, Environment Canada, Environment Canada's Intervention Respecting the City of Yellowknife Type A Water Licence Application, Issue 3.2.2, page 7.

<sup>29</sup> January 7, 2010 City of Yellowknife, Re: Water Licence Renewal Application – MV2009L3-0007 Response to GNWT Department of Environment and Natural Resources (ENR) Intervention and January 7, 2010 City of Yellowknife, re; Water Licence Renewal Application – MV2009L3-0007 Response to Environment Canada Intervention.

<sup>30</sup> November 27, 2009, Environment Canada, Environment Canada's Intervention Respecting the City of Yellowknife Type A Water Licence Application, Issue 3.1.1, page 4.

<sup>31</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #2, page 3.

<sup>32</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 1.

<sup>33</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #3, page 3.

<sup>34</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 2.

- D.21 As per Recommendation #6 from INAC<sup>35</sup>, to which the City agreed<sup>36</sup>. The Board has adopted this recommendation. The study findings and trend analysis reporting will help to determine if sampling requirements should be re-visited.
- D.22 As per Issue 3.2.1 in EC's written intervention<sup>37</sup>, to which the City agreed<sup>38</sup>. The Board has adopted this recommendation. This study will help to clarify matters raised surrounding discharge at the Biotreatment Pad of the Solid Waste Disposal Facilities
- D.23 As per Issue 3.2.3 in EC's written intervention<sup>39</sup>, to which the City agreed<sup>40</sup>. The Board has adopted this recommendation. This will assist in understanding the Water composition at the Solid Waste Disposal Facilities.

### **Part E: Conditions Applying to Modifications**

The conditions applying to modifications are included to ensure that best practices are followed when the Licensee modifies an existing or planned physical work. These conditions ensure the Board that an Engineer has designed the structure and that an Engineer has inspected the structure once it has been built. It also allows the Board to raise any concerns it may have regarding the Modifications before they are started.

### **Part F: Conditions Applying to Closure and Reclamation**

These conditions and corresponding Schedule 3, item 1 are related to the submission of a closure and reclamation plan for the Solid Waste Disposal Facilities. There was a requirement for the submission of a closure and reclamation plan in the previous Water Licence. During this renewal process, evidence was presented<sup>41</sup>, and accepted by the Board, to include a condition (I.1) requesting an interim closure and reclamation plan for the Solid Waste Disposal Facilities at least six months prior to closure of the current solid Waste disposal cell which is anticipated to be early in the term of the current Licence.

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<sup>35</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #6, page 4.

<sup>36</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to INAC intervention, page 2.

<sup>37</sup> November 27, 2009, Environment Canada, Environment Canada's Intervention Respecting the City of Yellowknife Type A Water Licence Application, Issue 3.1.1, page 7.

<sup>38</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to Environment Canada Intervention, page 3.

<sup>39</sup> November 27, 2009, Environment Canada, Environment Canada's Intervention Respecting the City of Yellowknife Type A Water Licence Application, Issue 3.1.1, page 4.

<sup>40</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007 Response to Environment Canada Intervention, page 4.

<sup>41</sup> From GNWT-ENR and INAC in written interventions dated November 27, 2009 and discussions at the public hearing.

### **Part G: Conditions Applying to Construction**

These are standard conditions to ensure that all new structures are designed, constructed, approved, and inspected by an Engineer.

### **Part H: Conditions Applying to Operation and Maintenance**

The conditions under Part H and corresponding Schedule 4, items 1 to 4 are related to the submission of management plans for the operation and maintenance of the Sewage Disposal Facilities, Solid Waste Disposal Facilities, the Biotreatment Pad, and the management of hazardous Waste. All plans have various timelines for submission as per Schedule 4. The inclusion of these plans is based on recommendations and evidence presented during the renewal process from GNWT-ENR, INAC, EC, and the City. In the previous Water Licence, only one over-arching operation and maintenance plan was required to be submitted to the Board. In this Licence, the plans are separated into individual operation and maintenance plans for ease of completion, review, and administration. The Board has adopted the structure and timelines for these plans as presented by the City.

### **Part I: Conditions Applying to Spill Contingency Planning**

The four conditions under Part I are standard conditions to ensure a contingency plan is in place, and that, during an unauthorized discharge of Waste, the Licensee must implement the plan and inform the appropriate regulators.

- I.1 As per Recommendation #4 from INAC<sup>42</sup>, to which the City agreed<sup>43</sup>.  
The Board has adopted this recommendation.

### **Surveillance Network Program**

The requirements and criteria for monitoring the characteristics of Water and Waste associated with the City's Water use and Waste disposal for municipal purposes are outlined in the Surveillance Network Program (SNP), which is included in the Water Licence. The SNP calls for extensive and ongoing sampling and analysis to be conducted at the stations identified. The number of stations, the sampling frequency, and the list of variables reflect the information that was considered necessary to determine the effectiveness of the Water treatment at the Waste Disposal Facilities and to monitor potential downstream and groundwater effects. The Board believes that the conditions specified in the SNP will ensure that adequate monitoring data are collected to characterize Waters and wastewaters, to assess compliance with the effluent quality criteria, and evaluate the Water treatment options.

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<sup>42</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #4, page 3.

<sup>43</sup> January 7, 2010 City of Yellowknife, Water Licence Renewal Application – MV2009L3-0007. Response to INAC intervention, page 2.

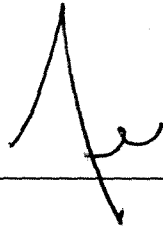
Two stations, 0032-15 and 0032-13, are to be relocated as per recommendations from INAC<sup>44</sup>. The Board has adopted the timelines as recommended by the City. The Board has also added two new SNP Stations, 0032-17<sup>45</sup> and 0032-18<sup>46</sup>, as per evidence presented during the renewal process.

### Conclusion

Subject to the terms and conditions set out in the Licence, and for the reasons expressed herein, the MVLWB is of the opinion that the licenced undertaking for Water use and Waste disposal for municipal purposes at the City of Yellowknife can be completed by the City of Yellowknife in a manner that will ensure the conservation, development, and utilization of Waters that will provide the optimum benefit there from for all Canadians and for the residents of the Northwest Territories in particular.

Signature

Mackenzie Valley Land and Water Board  
Preliminary Screening Organization



Chair

April 14, 2010

Date

<sup>44</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #7 and #8, page 5.

<sup>45</sup> Public Hearing, Transcript, page 75 (recommended by EC) and page 123 (agreed to by INAC).

<sup>46</sup> November 27, 2009 Indian and Northern Affairs Canada, Municipal Corporation of the City of Yellowknife – Type A Water Licence Renewal Application MV2009L3-0007, recommendation #10, page 5.



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FILE NUMBER: MV2009L3-0007

Date: June 2, 2010  
To: Mr. Dennis Kefalas  
Organization: City of Yellowknife  
Fax Number: (867) 920-5668  
Gordon Van Tighem, Mayor, City of Yellowknife  
Copied To: Marty Sanderson, A/District Manager, South Mackenzie District, INAC  
Robert Jenkins, Water Resources Division, INAC  
From: Amanda for Willard Hagen, Chair

Number of pages including cover 45

**Remarks:**

Re:  
Water Licence – Issuance of Type A Water Licence  
City of Yellowknife

If you have any questions please contact our office at  
(867) 669-0506 or email [permits@mvlwb.com](mailto:permits@mvlwb.com).

Thanks,

- Enclosures
- As requested
- For your information
- For your comment
- For your approval

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FILE NUMBER: MV2009L3-0007

Date: June 2, 2010
To: Mr. Dennis Kefalas
Organization: City of Yellowknife
Fax Number: (867) 820-5668
Copied To: Gordon Van Tighem, Mayor, City of Yellowknife
Marty Sanderson, A/District Manager, South Mackenzie District, INAC
Robert Jenkins, Water Resources Division, INAC
From: Amanda for Willard Hagen, Chair
Number of pages including cover 45

Remarks:

Re: Water Licence - Issuance of Type A Water Licence
City of Yellowknife

If you have any questions please contact our office at
(867) 669-0506 or email permits@mvlwb.com.

Thanks,

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As requested
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For your comment
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