Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

3rd Floor Bellanca Building
PO Box 1500
Yellowknife, NT
X1A 2R3

File: MV2009L3-0007

March 4, 2010

Lynn Carter
Regulatory Officer
Mackenzie Valley Land and Water Board
P.O. Box 2130
Yellowknife, NT X1A 2P6

Dear Ms. Carter,

Re: City of Yellowknife – MV2009L3-0007 – Draft Type "A" Water Licence

The Water Resources Division and South Mackenzie District office of Indian and Northern Affairs Canada have reviewed the draft type "A" water licence MV2009L3-0007 for municipal activities by the City of Yellowknife. INAC submits the attached comments to improve and provide additional clarity in the draft City of Yellowknife water licence.

If you have any further questions or concerns please contact Mr. Robert Jenkins at (867) 669-2574 or Robert.Jenkins@inac-ainc.gc.ca

Sincerely,

Carole Mills
Manager
Water Resources Division
Indian and Northern Affairs Canada

PART A - SCOPE AND DEFINITIONS

- The definition of "**Analyst**" should be revised to read as follows: "means an Analyst designated by the Minister under *section* 35(1) of the Act."

- "**Average Concentration for Faecal Coliforms**" is now proposed to be calculated using the geometric mean, rather than the arithmetic mean. INAC supports this change within the water licence. A geometric mean calculation can offset the effect of very high or low values, which might bias the mean if a straight average (arithmetic mean) were calculated. This is helpful when analyzing for faecal coliform concentrations, as levels may vary greatly over a given time period (e.g. from 10 to 1000 fold)

- The definition of "**Coarse-grained Soil**" should be revised to read as follows: "means coarse-textured soil having a median grain size of >75 µm 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."*

- The definition of "**Fine-grained Soil**" should be revised to read as follows: "means fine-textured soil having a median grain size of <75 µm 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."*

- The definition of "**Minister**" should be revised to read as follows: "means the Minister of Indian *Affairs and Northern Development*."

- The definition of "**Pump-out Sewage**" should be revised to read as follows: "means all Toilet Wastes *or Toilet Waste and* Greywater *mixture* collected by means of a vacuum truck for disposal at the Sewage Disposal Facilities."

- The definition of "**Sewage**" should be revised to read as follows: "means all Toilet Wastes *or Toilet Wastes and Greywater mixture*;

- The definition of **"Sewage Disposal Facilities"** should be revised to read as follows: "comprises the area and engineered structures designed to contain *and treat* Sewage, as shown.....dated March 24, 2009."

- The definition of "**Surveillance Network Program**" should be revised to read as follows: *"means a program established to define environmental sampling and analysis requirements during operations*."

- The definition of "**Waste**" should be revised to read as follows: "means Waste as defined by section 2 of the *Act*."

- The definition of "**Waters**" should be revised to read as follows: "means any Waters as defined by section 2 of the *Act*."

PART B - GENERAL CONDITIONS

- No comments

PART C – CONDITIONS APPLYING TO WATER USE

- **C1** - Condition 1 should also include the date of the 2009 water licence application.

- **C2** - Condition 2 provides the annual amount of water that can be used by the City of Yellowknife. INAC notes that there is a significant reduction in the approved water use amount in the draft licence (3,600,000 m^3) as compared to the previous licence (5,500,000 m^3). INAC understands that in 2009 the City used ~3,000,000 m^3 of water so the amount proposed by the Board is more than sufficient to meet current needs. However, in the setting of this amount, has the Board considered potential growth and increased demand of the City over the proposed duration (maximum term permissible under a Type A Water Licence is 25 years) of the water licence?

- **C4** - INAC recommends that Condition 4 be removed in its entirety. Condition 4 requires that water intake hoses be equipped with screens to prevent the entrainment of fish. Although INAC supports the use of mesh screens to prevent the entrainment of fish, INAC is of the opinion that such a requirement does not fall within the jurisdiction of the *Northwest Territories Waters Act* (use of water and the deposit of waste) and should not be contained within the terms and conditions of the water licence. Accordingly, INAC is of the opinion that such a clause within the water licence is not enforceable under the *Act*.

PART D - CONDITIONS APPLYING TO WASTE DISPOSAL

- **D8** - Condition 8 outlines the requirement for biannual inspections of all constructed berms, dykes, and dams within the sewage disposal facilities. INAC supports the Board's requirement to conduct inspections of these structures by a qualified engineer, as well as the development and submission of an implementation plan by the Licencee to address any concerns identified. However, INAC questions the biannual frequency of this requirement. A geotechnical inspection of these facilities would best be conducted following seasonal thaw, to observe any impacts on the stability of these structures during the transitional period (e.g. erosion caused by seasonal runoff; soil subsidence during thaw, etc.). Accordingly, it may not be until the month of June until such an inspection could take place. This would result in a report not being submitted to the Board until August. In order to meet the biannual summer inspection requirement as proposed by the Board, the Licencee would have to immediately conduct another inspection of the structures in question, possibly before

implementing any recommendations from the previous inspection. If this were the case, a second inspection would not be productive.

INAC suggests that the Board only require a single summer inspection of all constructed berms, dykes, and dams within the sewage disposal facilities. As proposed by the Board, an engineer's report should be submitted 60 days following and include an implementation plan to address any recommendations by the engineer. INAC suggests that only should the Licencee be required to conduct work at the structures in question to address stability/structural issues, that a second/follow-up inspection and corresponding report be submitted to the Board.

- **D9** – Criteria presented within this clause are adopted from the 2003 Government of the Northwest Territories "Guideline for Contaminated Site Remediation", which is based on the CCME "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (2001)". It should be noted that the CCME document was updated in 2008, and some changes to criteria have been made. Specifically, the industrial criterion for F1 for both coarse and fine grained soils is 320 mg/kg and for F2 the revised criterion is 260 mg/kg for both soil types.

- **D24** – INAC is pleased that the Board has accepted INAC's recommendation for the City to conduct CBOD and BOD sampling for a period of three years and to provide a trend/comparative analysis between the two parameters. However, INAC does not agree with the Board that the report to be submitted by the Licencee needs to be completed by a qualified engineer. INAC recommends that the clause be revised to read as follows: "*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.*"

- **D25** – INAC is unclear as to the Board's rationale for requiring the Licencee to conduct a study on the capabilities of the effluent discharge area for the Biotreatment Pad of the Solid Waste Disposal Facilities to absorb water. INAC notes that the Board has established a new SNP station (0032-17) to monitor the quality of effluent or drainage water discharged from the pad. INAC supports the establishment of this new SNP station; however, INAC does not understand the Boards rationale for requiring an "absorption study." Depending on the Board's rationale, such a study may be premature if it is found that the quality of the effluent being discharged is protective of the receiving environment.

PART E - CONDITIONS APPLYING TO MODIFICATIONS

- No comments

PART F - CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

- No comments

PART G - CONDITIONS APPLYING TO CONSTRUCTION

- No comments

PART H - CONDITIONS APPLYING TO OPERATIONS AND MAINTENANCE

- No comments

PART I – CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

- **I3** – INAC recommends that all spills equal or above reportable thresholds identified within the attached table be immediately reported to the NWT 24 hour spill report line (867) 920-8130. These reportable amounts align and build upon those identified within the *Spill Contingency Planning and Reporting Regulations* under the Government of the Northwest Territories' *Environmental Protection Act*. In addition, INAC recommends that all spills, regardless of amount should be recorded onsite and available to the Inspector upon request. Further, all spills, regardless of amount, are the responsibility of the proponent and must be cleaned up in a timely manner.

  INAC recommends that condition I3 be revised to read as follows: "*The Licensee shall immediately report to the 24 Hour Spill Report Line (867-920-8130) any spills equal or above the amounts established in Schedule I, Item 1, within municipal boundaries or in the areas of the Water Supply or Waste Disposal Facilities.*"

SCHEDULE F – CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

- Although directed at mining operations in the NWT, the City should refer to the concepts and information requirements contained within INAC's "Mine Site Reclamation Guidelines for the NWT." INAC believes that the information in guidelines would aid the City in the development of their own closure and reclamation plans.

SCHEDULE H – CONDITIONS APPLYING TO OPERATIONS AND MAINTENANCE

- **1.B.iv** - INAC would like to highlight to the Board that proper notification and approval of the appropriate authorities is required prior to any on-site burning.

SURVEILLANCE NETWORK PROGRAM - PART A

- The draft licence lists SNP 0032-F11 as an inactive SNP station. Although there are no sampling requirements slated within the Water Licence, INAC suggests that the City should consider collecting a sample from this location during the mid open water season and in the fall before freeze-up. Water quality information from this location would be useful in assessing the effectiveness of the Fiddler's Lake Sewage Disposal System.

SURVEILLANCE NETWORK PROGRAM - PARTS B-E

- No comments

Reportable Spill Quantities

TDG Class	Substance	Reportable Quantities for NWT/NU 24-Hour Spill Reports
1.0 2.3 6.2 6.2 7.0 None	Explosives Compressed gas (toxic/corrosive) Infectious substances Sewage and wastewater (unless otherwise authorization) Radioactive materials Unknown substance	Any amount
2.1 2.2	Compressed gas (flammable) Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L
3.0	Flammable liquid	≥ 100 L
4.1 4.2 4.3	Flammable solid Substances liable to spontaneously combustible Water reactant substances	≥ 25 kg
5.1	Oxidizing substances	≥ 50 L or 50 kg
5.2 9.0	Organic peroxides Environmentally hazardous substances intended for disposal	≥ 1 L or 1 kg
6.1 8.0 9.0	Toxic substances Corrosive substances Miscellaneous Products, Substances or Organisms	≥ 5 L or 5 kg
9.0	PCB mixtures of 5 or more parts per million	≥ 0.5 L or 0.5 kg
None	Other contaminants, e.g., crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater, etc.	≥ 100 L or 100 kg
None	Sour natural gas (i.e., contains H_2S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more
3.0 None	Flammable liquid Vehicular fluid	≥ 20 L When released on a frozen water body used as a working surface

Report releases/potential releases of any size that:

- are near or into an open water body;
- are near or into a designated sensitive environment or sensitive wildlife habitat;
- pose an imminent threat to human health or safety; or
- pose an imminent threat to a listed species at risk or its critical habitat.