



**Mackenzie Valley Land and Water Board**

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February 17, 2010

File: MV2009L3-0005

**Distribution List**

Dear Sir/Madam:

**Draft Type A water licence – Town of Hay River**

Attached for your review and comments is the above-mentioned draft Type A Water Licence. Your comments will be used in the evaluation of the licence conditions. Please note, comments that include new evidence will not be incorporated.

Please submit your comments in writing on or before **March 9, 2010 by 5:00 pm** quoting Water Licence MV2009L3-0005. No extensions will be granted.

If you have any questions regarding the draft Water Licence, please telephone (867) 669-0506 or email [permits@mvlwb.com](mailto:permits@mvlwb.com).

Yours sincerely,

A handwritten signature in black ink, appearing to be "SHANNON HAYDEN", enclosed within a large, hand-drawn oval.

Shannon Hayden  
Regulatory Officer

Attachment

## **PART A: Scope and Definitions**

### **Scope**

- a. This License entitles the Town of Hay River to use Waters and dispose of Waste for municipal purposes at the Town of Hay River, Northwest Territories, located at: 60° 51' N and 115° 43'.

### **Definitions**

In this License: **MV2009L3-0005:**

**"Act"** means the *Northwest Territories Waters Act*.

**"Analyst"** means an Analyst designated by the Minister under Section 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 Coliform"** 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.

**"Biotreatment Pad"** comprises the area and associated engineered infrastructure designed to contain and treat hydrocarbon contaminated soils, as defined in Hazco Environmental Services "Biopad – General Layout" drawing number HR-2, dated June 2003.

**"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 µm as defined by the American Society for Testing and Materials D422-63 "Standard Test Methods for Particle-Size Analysis of Soils".

**"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 µm as defined by the American Society for Testing and Materials D422-63 "Standard Test Methods for Particle-Size Analysis of Soils".

**"Freeboard"** means the vertical distance between 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 Section 35(1) of the Act.

**"Licensee"** means the holder of this License.

**"Minister"** means the Minister of Indian and Northern Affairs Canada.

**"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"** mean as-built drawings that have been verified by an Engineer.

**"Regulations"** means the Northwest Territories Waters Regulations (SOR/93-303) proclaimed pursuant to Section 33 of the Act.

**"Sewage"** means all Toilet Wastes and Greywater.

**"Sewage Disposal Facilities"** comprises the lagoon, sludge storage area, and adjacent swamp area (wetland) for treatment of Toilet Wastes and Greywater. The lagoon area and associated structures are further defined in UMA Engineering Limited "Town of Hay River Sewage Treatment System Improvements" drawing number 00-CM1003, dated September 29, 2006.

**"Solid Waste Disposal Facilities"** comprises the area and associated structures designed to contain solid Wastes, as identified in UMA Engineering Limited "Landfill Layout Hay River, NWT" drawing number Figure 8.

**"Surveillance Network Program"** means a monitoring program established to collect data on surface Water and groundwater quality to assess impacts to the environment.

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

**"Waste"** means Waste as defined by Section 2 of the Act.

**“Waste Disposal Facilities”** means all facilities designated for the disposal of Waste, and includes the Sewage Disposal Facilities and Solid Waste Disposal Facilities.

**“Waters”** mean any Waters as defined by Section 2 of the Act.

**“Water Licence Application”** means the application filed with the Board on June 16, 2009 and all associated correspondence filed by the Licensee and listed with the Board public registry.

**“Water Supply Facilities”** comprises the area and associated intake infrastructure, as identified in Stanley Associates Engineering Limited “Town of Hay River Intake Pumphouse Site Plan” drawing number 694-50-4-G2, dated September 1977.

## **PART B: General Conditions**

- B.1 This License is issued subject to the conditions contained herein with respect to the taking of Water and the depositing of Waste of any type in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Northwest Territories Waters Act, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited this License shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations.
- B.2 Compliance with the terms and conditions of this License does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial, 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 in Schedule B, Item 1, included in this licence.
- B.4 The Licensee shall comply with the Surveillance Network Program annexed to this Licence, and any amendment 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 License 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 maintain all signs posted to inform the public of Water Supply Facilities and Waste Disposal Facilities, and shall post any additional signage as required, to the satisfaction of an Inspector.
- B.10 The Licensee shall ensure a copy of this License is maintained at the Hay River municipal office(s), the Water Supply Facilities, and the Solid Waste Facilities at all times.

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

- C.1 The Licensee shall obtain all Water from Great Slave Lake using the Water Supply Facilities for municipal undertakings as described in the 2009 Water Licence Application or as otherwise approved by the Board.
- C.2 The total amount of Water obtained from Great Slave Lake for municipal purposes shall not exceed 750,000 cubic metres per year.
- C.3 The maximum amount of Water obtained shall not exceed 90,000 cubic metres per month.
- C.4 The Waters intake hose used on the Waters 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) (ISBN 0-662-23168-6)" or subsequent approved editions.

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

- D.1 The Licensee shall direct all piped and Pumpout Sewage through the Sewage lagoons and wetlands that comprise the Sewage Disposal Facilities, or as otherwise approved by the Board. Discharge from the Sewage Disposal Facility will be from the wetland to Great Slave Lake.
- D.2 With the approval of the Inspector, only one lagoon treatment cell within the Sewage Disposal Facility may be taken out of operation for conducting maintenance work at any time.

D.3 All Waste discharged from the Sewage Disposal Facilities by the Licensee at Surveillance Network Program Station Number 0053-2 shall meet the following effluent quality requirements:

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

Acute Toxicity -Rainbow Trout: pass/fail static bioassay test.  
 The Waste discharged shall have a pH between 6 and 9.

- D.4 The Licensee shall complete monitoring of wastewater effluent quality for carbaceous 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 in a report that is completed by a qualified Engineer before August 31, 2014.
- D.5 Licensee shall maintain the Sewage Disposal Facilities to the satisfaction of an Inspector.
- D.6 The Licensee shall dispose of all solid Wastes at the Solid Waste Disposal Facilities or as otherwise approved by the Board.
- D.7 The Licensee shall by, October 31, 2010, submit to the Board, for approval, a drainage and seepage study for the Solid Waste Disposal Facilities that includes, but not limited to, the information as set in Schedule D, Item 1, included in this licence.
- D.8 The Licensee shall, by October 31, 2010, submit to the Board a study into the Solid Waste Disposal Facilities operations to understand the remaining lifespan of the facilities and volumes of Waste the facilities can accept.
- D.9 The Licensee shall, by October 31, 2010, submit to the Board, for approval, a sludge management plan that includes, but is not limited to: estimates of the quantities of sludge likely to be produced; frequency of extraction of sludge from the lagoons; operational procedures developed for removal and disposal; recommendations for chemical and biological composition analysis for sludge removed from the lagoons; storage, treatment and disposal of sludge; and recommendation for monitoring of run-off and seepage Waters from the sludge disposal area.

- D.10 The Licensee shall submit to the Board a snow disposal plan within 90 days of the issuance of this license. This plan shall outline areas currently used or to be used for snow disposal, and the methods for managing and monitoring drainage Water from the snow disposal area(s).
- D.11 The Licensee shall annually review the snow disposal plan and shall modify the plan as required.
- D.12 The Licensee shall, prior to introducing any new industrial or agricultural Waste into the Waste Treatment Facilities, submit to the Board for approval a description of the Waste, including volumes of Waste, types of Waste and any mitigative measures proposed to protect the treatment disposal facilities.
- D.13 The Licensee shall maintain all dams, berms, dykes, and control structures associated with Waste Disposal Facilities and Water Supply Facilities as recommended by an Engineer. Inspection of all dams, berms, dykes, and control structures are to be completed once every 2 years by an Engineer.
- D.14 The Licensee shall, within six months of issuance of this licence, submit to the Board as-built plans and Record Drawings, signed and stamped by an Engineer, of:
  - a. The Sewage Disposal Facilities lagoon, associated structures and sludge storage area; and
  - b. The Solid Waste Disposal Facilities and Biotreatment Pad.
- D.15 The Licencee shall, within six months of issuance of this licence, submit to the Board a surveyed description of the wetland and associated structures that comprise part of the Sewage Disposal Facilities.
- D.16 A Freeboard limit of 1.0 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.17 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:

| <b>Parameter</b> | <b>Maximum Grab Sample</b> |
|------------------|----------------------------|
| pH               | 6 – 8                      |
| Benzene          | 5.0 mg/kg                  |
| EthylBenzene     | 20 mg/kg                   |
| Toluene          | 0.8 mg/kg                  |
| Xylene           | 20 mg/kg                   |

| <b>Total Petroleum Hydrocarbons</b> | <b>Course Grained Soils</b> | <b>Fine Grained Soils</b> |
|-------------------------------------|-----------------------------|---------------------------|
| 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 course or fine grained, soil must be treated to achieve the fine grained soil criteria.

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

- E.1 The Licensee may, without 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 the following requirements are met:
- a. The Licensee has notified the Board 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 License or the Act;
  - c. The Board has not, during the 60 days following the 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 the written consent of the Board.
- E.3 The Licensee shall provide to the Board final design drawings, signed and stamped by an Engineer that notes "issued for construction" or similar phrase clearly shown, 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, by December 2010, submit to the Board, for approval, an interim closure and reclamation plan for the Solid Waste Disposal Facilities.



The plan shall include, but not be limited to, the information as set in Schedule F, Item 1, included in this licence.

- F.2 The Licensee shall submit to the Board, for approval, a final closure and reclamation plan at least 6 months prior to abandoning any Waste Disposal Facilities. The Closure and Reclamation Plan shall include, but not be limited to, the information as set in Schedule F, Item 1, included in this licence.
- F.3 The Licensee shall implement the plan specified in Part F, Item 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, final design drawings stamped signed and stamped by an Engineer, which notes "issued for construction" or similar phrase clearly shown.
- 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 of the facilities stamped by an Engineer.

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

- H.1 The Licensee shall, within 3 months of the issuance of this License, submit to the Board, for approval, an updated plan for the operation and maintenance of the Waste Disposal Facilities. With regards to the Solid Waste Disposal Facilities and the Sewage Disposal Facilities, the Operation and Maintenance Plan shall be completed in accordance with Government of Northwest Territories, Municipal and Community Affairs 1996 "Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories". This Plan shall include but not be limited to, the information as set in Schedule H, Item 1, included in this licence.
- H.2 The Licensee shall implement the updated Plan 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 Plan and shall modify the plan to identify changes in operations, technology, and results from research and other studies. All proposed Modifications 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 30 days of issuance of this licence, submit to the Board for approval, a spill contingency plan in accordance with Indian and Northern Affairs Canada's "Guidelines for Spill Contingency Planning" (April 2007). The Spill Contingency Plan shall apply to the Waste Disposal Facilities, the Biotreatment Pad, and the 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 and technology. Any proposed Modifications 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, which are reported to or observed by the Licensee, within the Town boundaries or in the areas of the Water Supply Facilities or Waste Disposal Facilities.
- I.4 If, during the period of this License, an unauthorized discharge of Waste occurs, or if such a discharge is foreseeable, the Licensee shall:
  - a. Employ the spill contingency plan;
  - b. Report the incident immediately via the 24-hour spill reporting 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**

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**Chair**

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**Witness**

## **SCHEDULE B – General Conditions**

1. The Annual Report referred to in Part B, Item 1 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 through the Waste Disposal Facilities;
  - c. The monthly and annual quantities of Waste removed from the Waste Disposal Facilities;
  - d. Comparison of Waste volumes accepted to the remaining storage volume at the Solid Waste Disposal Facility;
  - e. Comparison of Waste volumes accepted to the remaining storage volume at the Biotreatment Pad;
  - f. Volume of treated soil removed from the Biotreatment Pad and analytical results for soil chemistry and particle size analysis;
  - g. Results of any leachate testing and analysis and how leachate is discharged or stored;
  - h. Results of any inspection of all dams, berms, dykes, and control structures;
  - i. Updates or revisions to the Waste Disposal Facilities Operation and Maintenance Plan;
  - j. Updates or revisions to the approved Snow Disposal Plan;
  - k. Updates or revisions to the approved Spill Contingency Plan;
  - l. A summary of Modifications and/or major maintenance work carried out on the Water Supply Facilities and Waste Disposal Facilities, including all associated structures;
  - m. Tabular summaries of all data generated under the Surveillance Network Program;
  - n. Comparison of the Surveillance Network Program data to Water licence regulated limits and sampling and analysis requirements;
  - o. Groundwater monitoring analyses from the Solid Waste Disposal Facilities;
  - p. A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
  - q. 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;
  - r. A list of unauthorized discharges;
  - s. The inclusion of all correspondence between the Inspector and the Licensee; and,
  - t. Any other details on Water use or Waste disposal requested by the Board by November 1<sup>st</sup> of the year being reported.

## **SCHEDULE D – Conditions Applying to Waste Disposal**

1. The Solid Waste Disposal Facilities Drainage Study shall include, but not be limited to the:
  - 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 and implementation schedule for any changes;
  - d. Leachate management and monitoring after closure;
  - e. Water balance for the Solid Waste Disposal Facilities to characterize the quantity and quality of leachate generated;
  - f. 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; and
  - g. Establish a general understanding of the composition of leachate across the Solid Waste Disposal Facilities site.

## **SCHEDULE F – 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 management, monitoring plan, and annual reporting details;
  - 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. Details for the abandonment of the Biotreatment Pad;
  - j. On-going reclamation details of the existing Solid Waste Disposal Facilities; and
  - k. Monitoring and annual reporting details of how leachate, surface and subsurface runoff during and after closure.

