

**YUKON WATER BOARD**

**LICENSING GUIDELINES FOR  
TYPE A MUNICIPAL UNDERTAKINGS**

**September, 2006**

## INTRODUCTION

Under the terms of the *Waters Act* (the *Act*), the Yukon Water Board is charged with licensing the use of waters and the discharge of wastes into waters within the Yukon Territory. This includes both surface water and groundwater. In these guidelines, the terms “use of water” and “water use” will be deemed to include the deposit of waste.

The *Act* and associated *Regulation* recognize various types of undertakings relating to the use of waters and the deposit of wastes, as well as different categories of licences. The types of undertakings include Industrial, Placer Mining, Quartz Mining, Municipal, Power, Agricultural, Conservation, Recreational and Miscellaneous. Licences are categorized as either Type A or Type B according to various thresholds of use and the category of the undertaking.

Through the *Act* and *Regulation*, the Board is mandated to receive and review applications for the use of water and the deposit of wastes, carry out public reviews, and establish appropriate terms and conditions controlling each requested use.

The purpose of these guidelines is to publicize the criteria for the Board’s deliberations regarding the licensing of Type A Municipal Undertakings and to clarify the Board’s expectations on such applications. The guidelines are not intended to serve as fixed standards for licensing; nor do they represent minimum licensing requirements. Rather, they are intended to set out a framework of principles, policies and targets that the Board can apply in its licensing deliberations. The Board may deviate from or supplement the guidelines. Similarly, the Board may require specific licence conditions for particular undertakings, on a case-by-case basis. These guidelines do not apply to drinking water standards, as these fall with the area of responsibility of Yukon Health and Social Services, Environmental Health Services.

Type A municipal undertakings may vary significantly, particularly in the type of technology being applied to the treatment and disposal of municipal effluent. For example, wastewater treatment facilities may be mechanical treatment plants or land-based systems such as lagoons or wetlands. Some systems may be combinations of these and other technologies. Without being unduly prescriptive, these guidelines are intended to provide direction regarding the minimum level of effluent treatment expected to be achieved and the factors that the Board requires be considered in any application for wastewater treatment and discharge.

The guidelines are arranged in a hierarchical format. The broadest principles are stated first and increasingly specific guidelines follow. Some of the guidelines are intended to apply at the application stage and others either during or after the licensing process.

The guidelines reference the submission of “preliminary” and “detailed” designs. These two terms and their applicability are further described in the guidelines. However, to be clear, the Board notes that it does not require detailed designs at the application stage.

## 1. STATUTORY REQUIREMENTS

The mandate of the Yukon Water Board is described in Section 10 of the *Act* :

**“The objects of the Board are to provide for the conservation, development and utilization of waters in a manner that will provide the optimum benefit from them for all Canadians and for the residents of the Yukon in particular.”**

The Board also has statutory obligations under Chapter 14 of the Umbrella Final Agreement (*“UFA ”*), principally in sections 14.8 and 14.9. Section 14.8.0 of the *UFA* provides that the Board shall not authorize any substantial alteration of the quantity, quality or rate of flow of water on or adjacent to settlement land, unless it is satisfied that:

- (a) there is no alternative which could reasonably satisfy the requirements of the applicant; and**
  
- (2) there are no reasonable measures by which the applicant could avoid causing the alteration.**

Section 14.9.0 imposes similar obligations upon the Board where a traditional use of water by a First Nation person in their traditional territory may be adversely affected by a licensed use.

In addition, as a territorial authority for Type A licence, the Board's actions in enabling a project are suspended until a screening under the *Yukon Environmental and Socioeconomic Assessment Act ( “YESAA ”*) has been completed and a determination has been made under that legislation.

Municipal projects may also be required to meet requirements of the *Canadian Environmental Protection Act ( “CEPA ”*) and the *Fisheries Act*.

## 2. PERFORMANCE OBJECTIVES

### 2.1 In licence proceedings, the Board will endeavour to:

- 2.1.1 protect public health and safety and, in particular, minimize risk to human life;
- 2.1.2 avoid, minimize and/or mitigate significant adverse environmental affects from the potential uses of waters authorized by it under the *Waters Act*;
- 2.1.3 achieve the objectives set out in the mitigation included in the *YESAA* screening, subject to the Board's authority and responsibility under the *Act* and the *UFA*;
- 2.1.4 consider long-term ecosystem impacts, including cumulative effects;
- 2.1.5 avoid, minimize and/or mitigate negative socioeconomic and financial impacts of authorized water uses on the public;
- 2.1.6 avoid, minimize and/or mitigate negative socioeconomic and financial impacts on applicants and authorized water users, consistent with its other obligations to the public;
- 2.1.7 issue licences with conditions that address the specific aspects of the project and site being authorized;
- 2.1.8 issue licences that are clear and enforceable and administratively consistent;
- 2.1.9 encourage the use of best practices, including both proven and innovative technologies. In the case of unproven technologies, the Board will take a cautious approach, expecting Applicants to provide more detailed rationales and contingency plans than might be expected in the case of proven technologies; and
- 2.1.10 act promptly and openly, pursuant to the principles of procedural fairness and natural justice.

### 3. INFORMATION GUIDELINES FOR APPLICANTS

#### 3.1 The Board expects that Applicants for Water Use Licences will:

- 3.1.1 submit to the Board project designs that reflect a “best practicable technology” approach to municipal wastewater treatment and which consider state-of-the-art technology in the context of economic feasibility, local considerations, and sustainability. If there are technical or economic reasons for the use of less than state-of-the-art technology, then the Applicant will be expected to submit clear, technically defensible and comprehensive explanations and justifications to the Board;
- 3.1.2 in the case of existing water and wastewater systems, submit comprehensive plans for sustainable future operation, maintenance and upgrading that are based on recognized best practices, such as those prepared by the *National Guide to Sustainable Municipal Infrastructures (InfraGuide)*.
- 3.1.3 submit comprehensive information regarding baseline conditions at and near the project site. Such information will normally include:
- a) surface and subsurface seasonal water quality and quantity;
  - b) surface and subsurface water flow patterns;
  - c) stream sediment data;
  - d) climatic data monitoring (particularly precipitation);
  - e) evaluations of permafrost;
  - f) descriptions of aquatic ecosystems particularly used by fish and other organisms;
  - g) descriptions of terrestrial ecosystems used by wildlife; and
  - h) descriptions of existing human activities and uses of resources.
- Investigations should be sufficiently specific and detailed that they provide an appropriate understanding of the characteristics and variability of the site.
- 3.1.4 submit information demonstrating that potential impacts to traditional uses and water rights under the *UFA* have been considered and that appropriate mitigation measures have been included;
- 3.1.5 submit designs based on a comprehensive water balance analysis;
- 3.1.6 submit a water quality model, with all assumptions and calculations clearly explained, that is sufficiently detailed to assess the performance of the project both seasonally and on a long-term basis;

3.1.7 submit design information which is to a sufficient level of detail so as to minimize the necessity for licence amendments due to subsequent changes in the project. In general, project designs should be at a preliminary design level which follows from the prefeasibility and/or conceptual studies required to determine the desirability of proceeding with a particular project. The preliminary design establishes the location, appearance and operation of the project so that approvals for the project can be obtained and so that initial orders can be placed with suppliers. The preliminary design is based on specific site investigations, although additional investigations may be required later in the design process. The preliminary design should include:

- a) a complete project description;
- b) initial specifications;
- c) small-scale preliminary plans showing layouts and general dimensions of structures and components;
- d) a project schedule covering engineering, procurement and construction activities; and
- e) a budget cost estimate.

No significant changes to the project should be made after the completion of the preliminary design, although it is anticipated that additional details of the design will be developed. Significant changes to the project will require licence amendments;

3.1.8 submit applications that contain a preliminary decommissioning and reclamation plan for closure of the project. It is recognized that municipal water and wastewater facilities typically have long lives; however, a decommissioning and reclamation plan is a requirement of the Act, regardless of the anticipated life of the project. The plan should be designed to ensure long-term stability, maintenance and replacement of any structures remaining after closure, to minimize and/or mitigate significant adverse environmental effects, and provide for ongoing monitoring. The plan's ultimate objective should be an environmentally sound abandonment of the site without further human intervention, unless the Applicant can demonstrate that a suitable long-term strategy and plan involving human activity has been developed.

### **3.2 The Board gives notice to potential Applicants that its policy is:**

3.2.1 that regardless of the specific effluent quality requirements for any wastewater treatment facility, municipal wastewater should receive treatment to at least a secondary level prior to discharge to the environment. Specific cases may warrant a higher level of treatment.

- 3.2.2 that dilution of wastewater is not an acceptable approach to wastewater management or to compliance with wastewater quality standards. In its licencing decisions, the Board will specify end-of-pipe effluent quality standards, not water quality standards after dilution in receiving waters. Nevertheless, Applicants may provide information regarding the mixing and dilution of discharged effluent in receiving waters to demonstrate further mitigation of potential human and environmental impacts relating to treated wastewater discharge.
- 3.2.3 the use of combined storm and sanitary sewer systems is not an acceptable best practice.
- 3.2.4 the LT<sub>50</sub> 96-hour bioassay is currently the recognized test for non-toxicity of effluent.

#### **4. DESIGN GUIDELINES**

- 4.1 The design of wastewater treatment facilities must consider the specific types, qualities and characteristics of wastes being discharged, or anticipated to be discharged, into the sewage collection system. The Applicant should demonstrate that municipal sewer use bylaws are in place to control discharges to sewers.
- 4.2 Treatment facility designs must consider the effects of seasonal variations in wastewater influent quality and quantity, including but not limited to the effects of temperature, bleeders, population variations and seasonal uses relating to facilities such as dump stations.
- 4.3 Treatment facility designs must consider the potential impacts of noise and odours and must incorporate measures, as appropriate, to mitigate such impacts.
- 4.4 Designs should consider and incorporate measures that will facilitate future upgrading of capacities and/or levels of treatment, to the extent that those measures can reasonably be anticipated.
- 4.5 Designs must be specific to the proposed site, its characteristics and related conditions.
- 4.6 Designs should be directed toward achieving the target effluent quality characteristics shown in Table 1, at a minimum. If a proposed project will not achieve these minimum targets, then the Applicant will be expected to submit clear, technically defensible and comprehensive explanations and justifications to the Board. On the other hand, meeting the minimum targets may not be considered acceptable if the context of the project warrants higher levels of treatment or if the proposed technology is capable of higher levels of treatment than those proposed.

Table 1: Minimum Target Effluent Quality Parameters

| <b>Parameter</b>       | <b>Minimum Target</b>         |
|------------------------|-------------------------------|
| BOD <sub>5</sub>       | 45 mg/L                       |
| Total Suspended Solids | 60 mg/L                       |
| pH                     | 6 to 9                        |
| Oil and Grease         | no visible sheen              |
| Faecal coliforms       | *                             |
| Toxicity               | non-toxic (LT <sub>50</sub> ) |

- \* A target concentration for faecal coliforms is expected to be proposed by the Applicant based on relationships to, and potential impacts on, recreational use that are fully documented and analyzed in the Applicant's supporting information.

## 5. LICENCE GUIDELINES

- 5.1 If a licence is issued, it may contain a requirement to submit to the Board prior to the commencement of construction, the final detailed design drawings, construction plans, specifications and quality assurance/quality control procedures for all proposed structures and facilities.

Depending upon the complexity of the project and the potential impacts, the licence, if issued, may contain a requirement not to proceed with construction until notified by the Board.

For clarity, detailed design is the last level of project design. It should include the results of any additional investigations identified during the preliminary design process and all of the final detailed drawings and specifications required to construct the project. All engineering drawings and specifications submitted to the Board must be sealed by a Professional Engineer licensed to practice in Yukon.

- 5.2 If a licence is issued, it may contain a requirement for water quality and flow monitoring points in addition to the points of compliance. Such additional monitoring points may be established for the purposes of monitoring the overall performance of the project and for identifying emerging problems in their early stages, as well as, for example, measuring and monitoring environmental effects including receiving water quality and biological and physical impacts.

- 5.3 If a licence is issued, it may contain a requirement to submit to the Board details of any modifications to or variations from the designs previously submitted, in advance of any related construction. Such submissions must include an explanation of the reasons for the change and an assessment of the potential environmental impact. All such design modifications must be sealed by a Professional Engineer licensed to practice in Yukon.
- 5.4 If a licence is issued, it may contain a requirement to submit to the Board final record (as-built) drawings of all structures and facilities following the completion of construction. All drawings must be sealed by a Professional Engineer licensed to practice in Yukon.
- 5.5 If a licence is issued, it may contain a requirement to submit to the Board a detailed construction quality assurance/quality control manual before beginning the construction of structures or facilities and to submit the results of the monitoring following the completion of construction. The manual should be designed to ensure that construction materials and methods conform to the designs and specifications for the project, as well as generally accepted practices, and that proper documentation of construction is maintained. All construction monitoring should be carried out under the supervision of Professional Engineers licensed to practice in Yukon.
- 5.6 Licensees should be aware that licences are tied to the information submitted in the application to the Board and that significant changes to the project will likely trigger a requirement for amendment of the licence.

These Guidelines were adopted by the Yukon Water Board, September 6, 2006  
Bruce Willis, Chairperson