AMENDING APPROVAL

PROVINCE OF ALBERTA

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT
R.S.A. 2000, c.E-12, as amended.

639-02-07

APPROVAL NO. ..............................................................

086-639

APPLICATION NO. ..........................................................

April 30, 2008

EFFECTIVE DATE: ........................................................

May 31, 2015

EXPIRY DATE: ..............................................................

City of Edmonton

APPROVAL HOLDER ...........................................................

___________________________________________________________

ACTIVITY: Construction, operation and reclamation of a wastewater collection system, wastewater treatment plant and storm drainage system for the City of Edmonton

is subject to the attached terms and conditions.

Designated Director under the Act ..............................................................

April 30, 2008

Date Signed ..............................................................
TERMS AND CONDITIONS ATTACHED TO APPROVAL

Environmental Protection and Enhancement Act Approval No 639-02-00 is hereby further amended as follows:

1. All terms and conditions of this approval are repealed and replaced with the following:

PART 1: DEFINITIONS

SECTION 1.1: DEFINITIONS

1.1.1 All definitions from the Act and the regulations apply except where expressly defined in this approval.

1.1.2 In all PARTS of this approval:

(a) "Act" means the Environmental Protection and Enhancement Act, R.S.A. 2000, c.E-12, as amended;

(b) "application" means the written submissions to the Director in respect of application number 086-639;

(c) "Director" means an employee of the Government of Alberta designated as a Director under the Act; and

(d) "ISO 17025" means the international standard, developed and published by International Organization for Standardization (ISO), specifying the management and technical requirements for laboratories to demonstrate their technical competence to perform defined tests and produce valid data and results.

PART 2: GENERAL

SECTION 2.1: GENERAL

2.1.1 The approval holder shall immediately report by telephone any contravention of the terms and conditions of this approval to the Director at 1-780-422-4505.

2.1.2 In addition to reporting pursuant to 2.1.1, the approval holder shall submit, within 7 days from any contravention of the terms and conditions of this approval, a written report to the Director.

2.1.3 Environmental Protection and Enhancement Act Approval No. 639-01-00, amended, is cancelled.
TERMS AND CONDITIONS ATTACHED TO APPROVAL

2.1.4 The approval holder shall analyze all samples required by this approval in a laboratory accredited pursuant to ISO 17025 standard, as amended, for the specific parameter(s) to be analyzed, unless otherwise authorized in writing by the Director.

2.1.5 The approval holder shall comply with the requirements of any written exemption from the Director in 2.1.4 as if each requirement were a term or condition of this approval.

PART 3: OPERATIONS AND PLANNING

SECTION 3.1: OPERATIONS

3.1.1 The approval holder shall implement the Wastewater Treatment Operations Plan as authorized in writing by the Director.

3.1.2 The approval holder shall implement the Collection Systems Operations Plan as authorized in writing by the Director.

3.1.3 The approval holder shall implement the Combined Sewer Overflow Control Strategy as outlined in the Combined Sewer Overflow Control Strategy Implementation Plan, June 1, 2000.

OPERATIONS PLANS

3.1.3 The Wastewater Treatment Operations Plan shall include, at a minimum, all of the following:

(a) Preventative Maintenance Treatment Capacity Protocol;

(b) Nitrification Maintenance Protocol;

(c) Nitrification Recovery Strategy Protocol;

(d) Treatment facility hydraulic and organic loading capacity estimates and plans for future capacity and/or effluent quality improvements;

(e) Sludge and Solids disposal protocol;

(f) Wastewater Treatment System Chemical Usage Protocol;

(g) Effluent Toxicity Testing Protocol;

(h) Effluent reuse Protocol;

(i) Monitoring Protocol;

(j) Digester Gas Protocol;
TERMS AND CONDITIONS ATTACHED TO APPROVAL

(k) Lab accreditation program that includes quality assurance and calibration procedures for all testing and monitoring equipment;

(l) Enhanced Primary Treatment Protocol; and / or

(m) as otherwise authorized in writing by the Director.

3.1.4 If the Wastewater Treatment Operations Plan, or any part of it, is found to be deficient by the Director, the approval holder shall correct all deficiencies as outlined by the Director within 120 days of the deficiency letter.

3.1.5 The Standard Operating Procedure of the BNR Processes shall include, at a minimum all of the following:

(a) Nitrification Maintenance Protocol;

(b) Nitrification Recovery Strategy Protocol;

(c) Improved Nitrogen Removal Protocol; and

(d) Phosphorus Removal Protocol.

3.1.6 The Collection Systems Operations Plan shall include, at a minimum, all of the following:

(a) Snow Storage Site Selection, Design and Monitoring Protocol;

(b) River Water Quality Monitoring Protocol;

(c) Collection System Monitoring Protocol;

(d) Collection System Chemical Usage Protocol; and

(e) River Load Calculation Protocol.

3.1.7 If the Collection Systems Operations Plan, or any part of it, is found to be deficient by the Director, the approval holder shall correct all deficiencies as outlined by the Director within 120 days of the deficiency letter.

3.1.8 The Approval holder shall, in consultation with the Director, conduct yearly reviews of the Wastewater Treatment Operations Plan, the Collection Systems Operations Plan, and the Standard Operating Procedure of the BNR Processes.
3.1.9 At all times the wastewater collection system and the wastewater treatment plant operation shall be performed by certified operators in accordance with the Standards and Guidelines for Municipal Waterworks, Wastewater, & Storm Drainage Systems, as amended.

SECTION 3.2: PLANNING

3.2.1 The approval holder shall construct and upgrade snow storage sites as described in the Snow Storage Site Selection, Design and Monitoring Protocol listed, or as otherwise authorized in writing by the Director.

STORM WATER QUALITY CONTROL STRATEGY

3.2.2 The approval holder shall develop a comprehensive Storm Water Quality Control Strategy and a plan for implementing this strategy.

3.2.3 The approval holder shall submit the Storm Water Quality Control Strategy report to the Director by June 1, 2008.

3.2.4 The approval holder shall implement the Storm Water Quality Control Strategy as authorized in writing by the Director.

COMBINED SEWER DISCHARGE STRATEGY

3.2.5 The approval holder shall develop a comprehensive Combined Sewer Discharge Strategy to address, at a minimum, the following:

(a) further reduce the discharge of untreated combined sewage flows from Edmonton's combined sewer system, including the plant bypass at the Gold Bar Wastewater Treatment Plant, and

(b) work towards the long term goal of sewer separation or its environmental equivalent to protect the North Saskatchewan River water quality.

3.2.6 The approval holder shall submit a draft of the Combined Sewer Discharge Strategy to the Director by June 1, 2012 and receive a letter of acknowledgement.

3.2.7 The approval holder shall submit the Combined Sewer Discharge Strategy to the Director by June 1, 2013 and receive a letter of acceptance.

3.2.8 The approval holder shall implement the Combined Sewer Discharge Strategy as authorized in writing by the Director.
TERMS AND CONDITIONS ATTACHED TO APPROVAL

TOTAL LOADINGS PLAN

3.2.9 The approval holder shall develop a Total Loadings Plan to the Director by June 1, 2009 and receive a letter of acceptance.

3.2.10 The approval holder shall implement the Total Loadings Plan as authorized in writing by the Director.

PART 4: EFFLUENT DISCHARGE LIMITS

SECTION 4.1: EFFLUENT AND DISCHARGE LIMITS

4.1.1 The approval holder shall release treated wastewater from the wastewater treatment plant only as follows:

(a) continuously:
   (i) to the North Saskatchewan River; and / or
   (ii) for effluent reuse water; or

(b) as otherwise authorized in writing by the Director.

4.1.2 The approval holder shall not release treated wastewater to the North Saskatchewan River containing any of the parameters in excess of the limits specified in TABLE 4-1.

**TABLE 4-1 LIMITS FOR TREATED WASTEWATER**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD₅</td>
<td>20 mg/L monthly arithmetic mean</td>
</tr>
<tr>
<td>TSS</td>
<td>20 mg/L monthly arithmetic mean of daily composite samples</td>
</tr>
<tr>
<td>Total Phosphorus (Effective December 1, 2008)</td>
<td>1.0 mg/L monthly arithmetic mean of daily composite samples</td>
</tr>
<tr>
<td>Ammonia-Nitrogen (December 1 to May 31)</td>
<td>10 mg/L monthly arithmetic mean of daily composite samples</td>
</tr>
<tr>
<td>Ammonia-Nitrogen (June 1 to November 30)</td>
<td>5.0 mg/L monthly arithmetic mean of daily composite samples</td>
</tr>
<tr>
<td>E. coli counts</td>
<td>200 counts per 100 mL/monthly geometric mean of daily grab samples</td>
</tr>
<tr>
<td>pH</td>
<td>6.5-9.5 pH unit</td>
</tr>
</tbody>
</table>
The approval holder shall use 1.0 mg/L monthly average concentration of Total Phosphorus as an operating target until the limit in Table 4-1 takes effect.

**PART 5: MONITORING AND REPORTING**

**SECTION 5.1: MONITORING AND REPORTING**

5.1.1 The approval holder shall monitor the wastewater treatment plant effluent as required in TABLE 5-1.

**TABLE 5-1: MONITORING – WASTEWATER TREATMENT PLANT**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency (Minimum)</th>
<th>Sample Type</th>
<th>Sampling Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TREATED WASTEWATER</strong></td>
<td></td>
<td></td>
<td>Wastewater treatment plant effluent prior to release to the North Saskatchewan River.</td>
</tr>
<tr>
<td>CBOD₅</td>
<td>Once a day</td>
<td>Composite</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>Once a day</td>
<td>Composite</td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Once a day</td>
<td>Composite</td>
<td></td>
</tr>
<tr>
<td>Ammonia-Nitrogen</td>
<td>Once a day</td>
<td>Composite</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>Continuous, recorded daily</td>
<td>Calculated</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Once a day</td>
<td>Composite</td>
<td></td>
</tr>
<tr>
<td>E. coli counts</td>
<td>Once a day</td>
<td>Grab</td>
<td>After ultraviolet (UV) disinfection.</td>
</tr>
</tbody>
</table>

**EFFLUENT REUSE WATER**

Volume of re-use water | Continuous, recorded daily | Calculated | Re-use water transmission main |

**WASTEWATER PLANT BYPASS**

Release Volume | Calculated |

CBOD₅          | Composite  |
TSS            | Primary and Secondary treatment bypass of wastewater at the wastewater treatment plant |
Phosphorus     | Composite  |
Ammonia-Nitrogen | Grab       |
E. Coli        |            |

**SLUDGE DISPOSAL**

Sludge Volume | Total Volume | Estimated | Prior to leaving the wastewater treatment plant |

TERMS AND CONDITIONS ATTACHED TO APPROVAL

5.1.2 The approval holder shall:

(a) create; and

(b) maintain an operating record for the wastewater treatment facility; which shall contain, at a minimum, all of the following information:

(i) a copy of this approval;

(ii) a copy of all monitoring results as required in 3.1.3 (i);

(iii) a copy of all Inspection reports prepared by Alberta Environment;

(iv) a copy of each monthly report; and

(v) a copy of all Annual Wastewater Reports.

5.1.3 The approval holder shall compile an Annual Wastewater Report which shall include the following:

(a) the monthly arithmetic mean, including maximum and minimum values, of each parameter monitored, excluding E. Coli counts, as outlined in TABLE 5-1;

(b) the monthly geometric mean of E. Coli counts;

(c) the monitoring requirements as outlined in the Wastewater Treatment Operations Plan and the Collection Systems Operations Plan as per 3.1.3 and 3.1.6; and

(d) the name of the supervising operator, and certified operators responsible for the operation of the wastewater system as outlined in 3.1.9;

(e) a summary of any incidents which required reporting in accordance with 2.1.1;

(f) yearly wastewater collection system and wastewater treatment plant construction program; and

(g) a summary of any operational problems.
TERMS AND CONDITIONS ATTACHED TO APPROVAL

5.1.4 The approval holder shall submit one copy of the Annual Wastewater Report to the Director on or before March 31 of the year following the year in which the information on which the report is based was collected.

DATED April 30, 2008

DESIGNATED DIRECTOR UNDER THE ACT