DOMESTIC WASTEWATER MANAGEMENT GUIDELINES FOR INDUSTRIAL OPERATIONS

(Previously Named Sanitary Sewage Management Guidelines for Industrial Operations)

INDUSTRIAL WASTE AND WASTEWATER BRANCH
AIR AND WATER APPROVALS DIVISION
ALBERTA ENVIRONMENTAL PROTECTION
JANUARY, 1995 (REVISED JULY 1997)
INTRODUCTION

The primary purpose of this document is to convey Alberta Environmental Protection's expectations for the management of sanitary sewage at industrial sites. This document highlights acceptable treatment systems and provides current monitoring and release standards as written into Environmental Protection and Enhancement Act approvals for the respective treatment system.

Questions regarding this document may be directed to the staff of the Industrial Waste and Wastewater Branch at (403) 427-5883.

1. Approval Definitions

   1.1 "domestic wastewater" means any wastewater generated in the kitchen, privy, or lavatory facilities of the plant.

2. Treatment Methods (Approvals)

   2.1 The domestic wastewater generated at the plant, shall be:

   (a) treated and released by a septic tank and field system (or other similar wastewater disposal systems),

   (b) released to a holding facility with periodic removal of the wastewater to an approved wastewater treatment system,

   (c) released to the (municipality or industry) wastewater collection system subject to receiving prior written consent from the owner(s),

   (d) released to the wastewater evaporation pond,

   (e) treated and released by wastewater stabilization ponds and irrigation (subject to acceptable wastewater quality and soil conditions),

   (f) treated and released by the:

      i. wastewater stabilization pond,
      ii. aerated lagoon,
      iii. mechanical wastewater treatment system.

      which shall be (designed/operated) in accordance with the latest edition of "Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems", or as otherwise authorized by the Director, and

   (g) treated and discharged by the plant's industrial wastewater treatment facility.
Note: The Plumbing and Gas Safety Services Branch of Alberta Labour may also approve sanitary systems provided that the following conditions are satisfied:

1) No discharge of domestic wastewater off the industrial site.
2) The design flow of domestic wastewater is less than 50 m$^3$/day.

References include:

- "Alberta Private Sewage Treatment and Disposal Regulations", available from the Learning Resources Distribution Centre at 12360 - 142 Street, Edmonton, Alberta, T5L 4X9; phone (403) 427-2767.

- Surface discharge of untreated sanitary sewage will not be accepted by Alberta Environmental Protection at industrial sites.

- Either Alberta Labour or Alberta Environmental Protection approval will be required for new systems employing 2.1(a) or (b) above.

- Alberta Environmental Protection approval will be required for all other methods of disposal.

- Depending on site-specific requirements, the Director may specify a suitable treatment and disposal method.

3. Sanitary Sewage Sludge Management:

3.1 Sludge produced by the domestic wastewater collection and treatment system shall be disposed of:

(a) at a wastewater treatment facility approved under the Environmental Protection and Enhancement Act,

(b) at an approved composting facility,

(c) at a landfill approved under the Environmental Protection and Enhancement Act to accept such waste,

(d) by incineration at a facility approved under the Environmental Protection and Enhancement Act to incinerate such waste, or

(e) by land application, with prior written approval from the Director, as per Alberta Environmental Protection's "Guidelines for the Application of Municipal Wastewater Sludges to Agricultural Lands".

Note: Raw sludge generated under 2.1(b) may not be allowed to be disposed on land.
4. Approval Release Limits

4.1 The release of treated domestic wastewater from the storage cells of the wastewater stabilization pond(s) is permitted only once a year between April 1 and November 30 for not more than three weeks. The release shall be controlled in such a manner so as not to result in flooding of adjacent land or erosion of the discharge course. The approval holder shall notify the Air and Water Approvals Division (at least 21 days) prior to the discharge of the treated wastewater.

4.2 The release from the aerated lagoon shall be to ___________ and shall be controlled such that the following limits are complied with:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MONTHLY AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>25 mg/L</td>
</tr>
</tbody>
</table>

4.3 The release from the mechanical wastewater treatment system shall be to ______________ and shall be controlled such that the following limits are complied with:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MONTHLY AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>25 mg/L</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>25 mg/L</td>
</tr>
</tbody>
</table>

Note:

- The continuous release of effluent from an aerated lagoon or mechanical treatment system shall only be to a receiving stream with a minimum monthly flow of at least ten times the average daily effluent discharge.

- More stringent BOD/TSS limits and requirements for ammonia and phosphorous removal may be applied depending on the sensitivity of the surrounding watershed.

- *The 21-day notice will only be required for release to sensitive areas.

- Under certain circumstances, the owner of the wastewater stabilization ponds will be required to acquire the land along the drainage route up to the main drainage course, or easement from the appropriate land owner(s).
5. Approval Monitoring Conditions

5.1 The approval holder shall monitor the release of treated domestic wastewater from the wastewater stabilization pond as follows:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>FREQUENCY</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Flow (m$^3$/day)</td>
<td>Daily</td>
<td>Estimate</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>Once during discharge</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>Once during discharge</td>
<td>Grab</td>
</tr>
</tbody>
</table>

5.2 The approval holder shall monitor the release of treated domestic wastewater from the aerated lagoon as follows:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>FREQUENCY</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Flow (m$^3$/day)</td>
<td>Daily</td>
<td>Flowmeter</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>Once per week</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>Once per week</td>
<td>Grab</td>
</tr>
</tbody>
</table>

5.3 The approval holder shall monitor the release of treated domestic wastewater from the mechanical wastewater treatment system as follows:

<table>
<thead>
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<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Flow (m$^3$/day)</td>
<td>Daily</td>
<td>Flowmeter</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>Daily</td>
<td>24 hour composite</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>Daily</td>
<td>24 hour composite</td>
</tr>
</tbody>
</table>

Note:

- A Company may apply to reduce the frequency of monitoring for a mechanical wastewater treatment system. The application must include appropriate supporting documentation showing good treatment plant performance. (including daily and seasonal fluctuations of treatment provided based upon composite sampling)

- "Estimate" means a technical evaluation based on the sources contributing to the discharge, including, but not limited to, pump capabilities, water meters, and batch discharge volumes.
Other Comments:

Alberta Environmental Protection will also take the following into consideration when reviewing applications on domestic wastewater management at industrial operations:

(a) The need for wastewater disinfection will be assessed on a site specific basis, using criteria given in Health and Welfare Canada's publication entitled "Sanitary Sewage Disinfection: Need and Application". Disinfection of domestic wastewater from industrial operations will not normally be required. The needs of downstream water users and ecological ecosystems will determine the need for disinfection.

(b) Release of effluent to lakes or other stagnant water bodies is discouraged, while release to recreational lakes is prohibited.

(c) Lagoon liners shall be designed in accordance with "Design and Construction of Liners for Sanitary Sewage Stabilization Ponds" (1985) and must meet criteria outlined in Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems.

(d) Wastewater stabilization ponds, aerated lagoons, and mechanical wastewater treatment facilities must be located within the setback distances stipulated in the Environmental Assessment Division guidelines (example: 300 metres from any private residence located off the plant property), 6th Floor, 9820-106 Street, Edmonton, Alberta, T5K 2J6.

(e) The one-year retention time required of a wastewater stabilization pond may be reduced when the final effluent is used for irrigation.

(f) Nitrification inhibited BOD may be used as a release limit. When this is approved, monitoring for both inhibited and uninhibited BOD may be required.

(g) Groundwater monitoring wells may be required subject to review by Alberta Environmental Protection.