MICHIAGN DEPARTMENT OF ENVIRONMENTAL QUALITY
SURFACE WATER QUALITY DIVISION
APRIL 2001

STAFF REPORT

CHRONIC TOXICITY ASSESSMENT OF CADILLAC WWTP
OUTFALL 001 EFFLUENT

CADILLAC, MICHIGAN
DECEMBER 6-13, 2000
NPDES PERMIT NO. MI0020257

INTRODUCTION

Staff of the Great Lakes and Environmental Assessment Section (GLEAS) performed a Ceriodaphnia dubia chronic toxicity test on composite samples of the Cadillac WWTP outfall 001 effluent from December 6-13, 2000. The facility was operating normally when the samples were collected.

Toxicity testing was performed according to GLEAS Procedure #54 (procedure available upon request).

The effluent samples did not contain quantifiable levels of total residual chlorine (level of quantification = 0.02 mg/l). Therefore, dechlorination was not necessary.

The facility discharges treated municipal wastewater to the Clam River (design flow = 3.2 mgd at the time of sampling). The allowable acute and chronic toxicity levels for the effluent at the time of the test were 0 TUa and 1.1 TUc, respectively.

SUMMARY

Test water quality parameters met test acceptability criteria (data available upon request).

The toxicity of the effluent to C. dubia did not exceed an allowable level (1.0 TUa, 1.1 TUc). The effluent was not toxic to C. dubia (0 TUa, 0 TUc).

Test and Report by: William F. Dimond, Aquatic Biologist-Lead Worker
Water Quality Appraisal Unit North
Great Lakes and Environmental Assessment Section
Table 1. Mean reproduction and percent survival of *Ceriodaphnia dubia* exposed to selected concentrations of Cadillac WWTP outfall 001 effluent from December 6-13, 2000.

<table>
<thead>
<tr>
<th>Percent Effluent</th>
<th>Average Young/Adult</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control*</td>
<td>16.0</td>
<td>100</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>41</td>
<td>34.7</td>
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<td>80</td>
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<tr>
<td>64</td>
<td>12.0</td>
<td>100</td>
<td>100</td>
<td>80</td>
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<tr>
<td>80</td>
<td>22.4</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>15.9</td>
<td>100</td>
<td>90</td>
<td>80</td>
</tr>
</tbody>
</table>

*Control was moderately hard dilute mineral water.