MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
SURFACE WATER QUALITY DIVISION
OCTOBER 2001

STAFF REPORT

ACUTE TOXICITY ASSESSMENT OF MUSKEGON CO
WWMS METRO WWTP OUTFALL 101 EFFLUENT

MUSKEGON, MICHIGAN
SEPTEMBER 25 - OCTOBER 1, 2001
NPDES PERMIT NO. MI0027391

INTRODUCTION

Staff of the Great Lakes and Environmental Assessment Section (GLEAS) performed a Ceriodaphnia dubia acute toxicity test on composite samples of the Muskegon Co WWMS Metro WWTP outfall 101 effluent from September 25 - October 1, 2001. The facility was operating normally when the sample was collected.

Toxicity testing was performed according to GLEAS Procedure #24 (procedure available upon request). Because the test was intended as a chronic toxicity test, test methods varied from procedure 24 as follows:

- 10 C. dubia in individual replicates were exposed to each treatment and control.
- Test chambers were fed 0.1 ml of Raphidocelis subcapitatum and yeast-trout chow cerophyll suspension daily.
- The test was renewed after 24 hours of exposure.

The facility discharges treated municipal and industrial wastewaters to the Muskegon River. The receiving water concentration (RWC) of the effluent was 28% effluent at the time of the test.

SUMMARY

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

2. Because the chronic portion of the test did not meet test acceptability requirements (unexplainable dose-response), the chronic data were not valid. However, the lack of significant mortality in any effluent treatment (Table 1) indicates the effluent was not acutely toxic to C. dubia (0.0 TUa).

Test and report by: Bill Dimond, Aquatic Biologist-Lead Worker
Water Quality Appraisal Unit North
Great Lakes and Environmental Assessment Section
Table 1. Percent mortality of *Ceriodaphnia dubia* exposed to selected concentrations of Muskegon Co WWMS Metro WWTP outfall 101 effluent from September 25 - October 1, 2001.

<table>
<thead>
<tr>
<th>Percent Effluent</th>
<th>24 Hours</th>
<th>48 Hours</th>
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<tbody>
<tr>
<td>Control*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>32</td>
<td>0</td>
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</tr>
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</tr>
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<td>56</td>
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</tr>
<tr>
<td>75</td>
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<td>0</td>
</tr>
<tr>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Control was aerated, activated carbon-filtered Lansing city water.*