MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
SURFACE WATER QUALITY DIVISION
APRIL 1998

STAFF REPORT

ACUTE TOXICITY ASSESSMENT OF BIG RAPIDS WASTEWATER TREATMENT PLANT OUTFALL 001 EFFLUENT BIG RAPIDS, MICHIGAN MARCH 25 - 27, 1998 NPDES PERMIT NO. MI0022381

Staff of the Great Lakes and Environmental Assessment Section (GLEAS) performed a *Daphnia magna* acute toxicity test on a grab sample of the Big Rapids Wastewater Treatment Plant (WWTP) outfall 001 effluent from March 25 - 27, 1998. The facility was operating normally when the sample was collected.

Toxicity testing was performed according to GLEAS Procedure #24 (available upon request). The facility does not chlorinate the effluent, and, therefore, dechlorination of the sample was not necessary.

The facility discharges treated municipal wastewaters to the Muskegon River through outfall 001. The municipality has an annual average design flow of 2.4 mgd (3.7 cfs). The receiving water concentration (RWC) of the effluent is 3.8% effluent.

SUMMARY

1. The effluent was not acutely toxic to *Daphnia magna* (Table 1a).

2. Test water quality parameters met minimum test acceptability criteria (Table 1b).

3. The results of this study suggest that the effluent was meeting the acute aquatic toxicity-related requirements of Rule 1219 of the Part 8 Rules.

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Table 1a. Percent mortality of *Daphnia magna* exposed to select concentrations of Big Rapids WWTP outfall 001 effluent from March 25 - 27, 1998.

Percent Effluent	24 Hours	48 Hours
0	0	33
32	0	0
42	0	0
56	0	0
75	0	0
100	0	0

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

Table 1b. Initial test chamber water quality characteristics.

Parameter	Control	42%	100%
Dissolved Oxygen (mg/l)	7.8	7.7	7.7
Temperature	24.4	24.6	24.6
pH (S. U.)	7.68	8.09	8.02
Conductivity (□mhos/cm)	439	690	1018
Alkalinity (mg/l)	48	----------	248
Hardness (mg/l)	92	----------	208
Total Residual Chlorine	----------	----------	N.D.*

*N.D. indicates not detected (detection limit = 0.02 mg/l)