

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
SURFACE WATER QUALITY DIVISION  
SEPTEMBER 1998

STAFF REPORT

ACUTE TOXICITY ASSESSMENT OF PILOT TOOL & DIE CORP  
OUTFALL 001 EFFLUENT

REED CITY, MICHIGAN  
AUGUST 12-14, 1998  
NPDES PERMIT NO. MIG250188

Staff of the Great Lakes and Environmental Assessment Section (GLEAS) performed a *Daphnia magna* acute toxicity test on a grab sample of the Pilot Tool & Die Corp outfall 001 effluent from August 12-14, 1998. The facility was operating normally when the sample was collected.

Toxicity testing was performed according to GLEAS Procedure #24 (procedure available upon request). There was no chlorine detected (detection limit= 0.02 mg/l) in the effluent upon arrival at the Aquatic Toxicology Laboratory (ATL). Therefore, dechlorination was not necessary.

The facility discharges noncontact cooling water to the Hersey River (authorized discharge rate=0.025 mgd). The receiving water concentration (RWC) of the effluent is 0.7% effluent.

SUMMARY

1. Test water quality parameters met minimum test acceptability criteria (Table 2).
2. The effluent was not acutely toxic to *Daphnia magna* (Table 1).
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 1. Percent mortality of *Daphnia magna* exposed to select concentrations of Pilot Tool & Die Corp outfall 001 effluent from August 12-14, 1998.

Percent Mortality

| Percent Effluent | 24 Hours | 48 Hours |
|------------------|----------|----------|
| 0                | 0        | 0        |
| 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 2. Initial test chamber water quality characteristics.

| Parameter               | Control | 42%  | 100% |
|-------------------------|---------|------|------|
| Temperature (°C)        | 25.5    | 25.0 | 24.5 |
| Dissolved Oxygen (mg/l) | 7.7     | 7.6  | 7.6  |
| pH (S.U.)               | 7.85    | 8.04 | 7.91 |
| Conductivity (umhos/cm) | 448     | 430  | 413  |
| Alkalinity (mg/l)       | 52      | ---- | 208  |
| Hardness (mg/l)         | 84      | ---- | 236  |
| Total Residual Chlorine | ----    | ---- | N.D. |

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