

CLASSIFICATION OF AN UNNAMED TRIBUTARY OF THE POPPLE RIVER
CLARK COUNTY, BLACK RIVER BASIN
(HEMLOCK CHEESE FACTORY INCORPORATED)

EVALUATION DATE: 7/2/85

By Paul LaLiberte

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An unnamed tributary of the Popple River, Clark County (SW 1/4, Section 11, T27N, R2W) was evaluated to determine the appropriate surface water classification for setting effluent limits as specified in NR 104, Wisconsin Administrative Code. Hemlock Cheese Factory discharges cooling and process water to an otherwise dry ditch and constitutes the headwater of the unnamed stream. The current WPDES permit for the facility contains no effluent limits or monitoring requirements other than recording the hydraulic loading rate.

The stream is about 1/2 mile in length and has a watershed of about 160 acres. From the creamery downstream about 1/4 mile, the stream consists of a ditch with non-continuous flow. The ditch appears to travel down a natural drainageway and directs the wastewater to an apparently natural wetland. The ditch contained significant growths of non-photosynthetic slimes (presumably Sphaerotilus) and white sludge. A small amount of flow was present. Flow through the wetland was not well channelized and appeared to move slowly in diffuse surface sheets. Two well defined channels direct water from the wetland to the Popple River, one to the north and one under Highway 73 to the northwest. The channel to the north is not indicated on the current U.S.G.S. map.

The wetland appeared to be a groundwater discharge area as surface water outflow was judged to exceed surface water inflow. Areas of the wetland not heavily influenced by the effluent had better water clarity and no sludge deposits or slime growths. The wetland was heavily vegetated in all but two areas. One area was the south edge of the wetland receiving the effluent. A considerable accumulation of dairy waste solids was present which buried the existing substrate and burned adjacent vegetation. Water quality in the area was very poor and an odor and fly problem was evident. The other area was at the far northern edge of the wetland (near the woods) which appeared to be a low spot and as such probably had enough pooled water throughout the year to limit growth of terrestrial vegetation. Water quality in this area appeared somewhat better than in the upstream open areas to the south.

A noticeable improvement in water quality occurred as the effluent flowed through the wetland. This was probably due to the combined effect of breakdown of the dairy wastes within the wetland and addition of groundwater. While the existing wetland discharge appears to have considerably better water quality than the incoming effluent, this situation may not continue if high strength wastes continue to burn the vegetation and deposit a sludge bed.

RECOMMENDED CLASSIFICATION

The Hemlock Cheese tributary to the Popple River should be classified as capable of supporting marginal aquatic life (use class E). Effluent limits for the present discharge at Hemlock Cheese should conform to NR 104.02(3)(b), Wisconsin Administrative Code.

cc: Jon Bugenhagen

→ Duane Schuettepelz - WRM/2
Darrell Solberg

Popple R.

Flow
channels

open
area

Wetland

Hwy
73

Burned
Area

Turn Road

accumulation
clay

Turn Rd

Cremery