

DATE: 1-9-2023 FILE REF: Packwaukee WWTF, Marquette County

TO: Nicole Krueger, Limit Calculator

FROM: David Bolha, Water Resources Management Specialist; Kristi Minahan, Water Quality Standards; Diane Figiel, Limit Calculator Coordinator

SUBJECT: Packwaukee Wastewater Treatment Facility Effluent Receiving Water Evaluation

### Overview of issue

The current limits for the Packwaukee WWTF are based on Limited Aquatic Life for a wetland receiving water. For downstream protection, limits are based on Warmwater for an Unnamed Tributary (WBIC 5027302) (Photo 4) and the Mad River (WBIC 169600). The permit is due for reissuance and the Water Evaluation Section and Wastewater Program requested that I conduct a receiving water evaluation to verify or update the basis for future limits. The site visit was conducted on 6-15-2022. The main question was whether or not the effluent discharges into a wetland and if the effluent has formed a channel flowing out of the receiving wetland.

### Summary of recommendations

- Segment 1 (most upstream): *Wetland on West side of Hwy M (Map 1, from B-C). Effluent from the facility travels under its access driveway via pipes before discharging into wetland on West side of Hwy M (Map 1, from A-B).*
  - Codified designated use: LAL. This is a non-channelized wetland, and under ch. NR 104.02(3)(b)1. all wetlands are considered LAL even if they are not individually listed as LAL in the NR 104 tables.
  - Classification used for previous permit issuance: LAL
  - Previous stream class recommendations: N/A
  - Modeled Natural Community: N/A
  - New recommended Natural Community and Designated Use: Wetland/LAL

### Site overview map



Map 1: Packwaukee WWTF Effluent Flow Path

### Site observations

The effluent (Location A) is pumped through pipes under the access driveway of the facility toward County Hwy M. The pipes extend under County Hwy M and into a 3' earthen berm around a wetland complex on the west side of County Hwy M (Location B, Photo 1). The effluent can be discharged into the wetland complex by 1-5 valves located in the berm. At the time of the site visit, 3 valves were in operation. I observed no indication of the effluent being discharged into the wetland complex (no channel; vegetation obscured any outlet pipes). The berm fully encloses

the receiving wetland complex and extends west until the Unnamed Tributary (WBIC 5027302) to the Mad River. Approximately where the Packwaukee Sanitary District No. 1 outfall is located on the Surface Water Data Viewer (on the west end of the wetland complex, point C), a water control structure is built into the berm (N43.77086, W-89.47055) (Photo 2-3). The water control structure contained 4 6-inch boards, all of which were dry indicating they had not held back water for some time. Inside the structure was also dry. I observed no indication of flow to the west of the structure into the Unnamed Tributary (WBIC 5023072) (Photo 5). I continued along the berm to the south and then followed it east until County Hwy M. I observed no indication that flow reaches through the berm into the Unnamed Tributary (WBIC 5023072) to Mad River.

**Discussion:**

- The effluent of Packwaukee WWTF discharges through valves into the wetland complex on the West side of Hwy M (Location B) where it dissipates and does not form a channel or continue downstream into WBIC 5027302.
- No fish or habitat surveys were conducted during site visit. No future surveys recommended.
- The current classification of LAL used for the previous permit issuance is appropriate as the effluent dissipates into a non-channelized wetland complex. It would be appropriate to add the wetland to ch. NR 104 tables as LAL-Wetland.

**Attachments**



**Photo 1: Packwaukee WWTF Effluent Receiving Wetland facing West from County Hwy M. Photo taken by David Bolha on 6/15/2022.**



**Photo 2: Packwaukee Sanitary District No. 1 Outfall Water Control Structure. Photo taken by David Bolha on 6/15/2022.**



**Photo 3: Packwaukee WWTF Effluent Receiving Wetland at Sanitary District No. 1 Outfall. Photo taken by David Bolha on 6/15/2022.**



**Photo 4: Un Trib (WBIC 5027302) to Mad River Facing West from Hwy M. Photo taken by David Bolha on 6/15/2022.**



**Photo 5: Un Trib (WBIC 5027302) at Packwaukee Sanitary District No. 1 Outfall Facing West. Photo taken by David Bolha on 6/15/2022.**