

Region <u>WCK</u>	County <u>Marathon</u>	Report Date <u>10/2000</u>	Classification <u>LAL/LFF</u>
Water Body: <u>Dill Creek, Trib to</u>			
Discharger: <u>Unity WWTP</u>			

If stream is classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that are identified in the classification report:

- Naturally occurring pollutant concentrations prevent the attainment of use
- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met
- Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
- Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use
- Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

Supporting Evidence in the report (include comments on how complete/thorough data is)

- Biological Data (fish/invert)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other:

Historical Reports in file:

10/26/2000 mark Hertzog

Additional Comments/How to improve report:

- not sure what factors are that force LAL/LFF class'n.
(- habitat?)

15/11/05 try wetland class'n?

DATE: October 26, 2000

FILE REF: [Click [here](#) and type file ref.]

TO: Greg Searle
Eric Donaldson
Paul Laliberte
Tom Jerow
Al Hauber

FROM: Mark Hazuga

SUBJECT: Wetland evaluation and stream classification for proposed discharge from the Unity WWTP to Unnamed Creeks 31-14 and 32-16

The Village of Unity wastewater plant has discharged to a riparian wetland of the Little Eau Pleine River for the past 35 years. The village recently built a new WWTP with authorization from the Department to continue discharge to the same location with effluent limits consistent with a receiving water designation of wetland. The village is currently considering relocation of the outfall to Unnamed Creek 31-14 that eventually flows to Dill Creek. According to the USGS QUAD map, Unnamed Creek 31-14 originates in T27N R1E Sec 1 NW NE and flows approximately one mile before emptying into Unnamed Creek 32-16. From this point, Unnamed Creek 32-16 flows approximately 1.5 miles before it joins Dill Creek in T28N R2E Sec32 SE SE. According to the Colby WWTP stream classification report, Dill Creek at this location would have the Fish and Aquatic Life classification. The two unnamed creeks are not currently listed in NR 104, therefore receive the default classification of Fish and Aquatic Life. These streams would be expected to have a Q_{7,10} flow of zero.

On September 21, 2000, department staff conducted field surveys to determine the appropriate classifications of these unnamed streams and an appropriate discharge location to avoid wetland impacts. Water levels were probably higher than normal baseflow conditions in the stream due to heavy rains that fell approximately one week prior to the survey. The upper half mile of Unnamed Creek 31-14 was a wetland drainageway that does not have channelized streamflow. Relocating the discharge from the current wetland to this second wetland would not pass the practicable alternatives requirement in NR 103, because routing the wastewater to this currently unimpacted wetland would merely transfer the historic wetland impacts from one site to another. The practicable alternative for this proposal is to avoid impacting this second wetland by leaving the discharge where it is.

A third option inherent in this proposal is to attempt to discharge to Unnamed Creek 31-14 without impacting wetlands. To accomplish this, the facility would have to pipe the effluent around the headwater wetland and directly to Unnamed Creek 31-14 where channelized flow is present. This would avoid hydraulic and biological alterations to the wetland. Department staff walked the wetland drainage way from STH 13 downstream and found channelized flow at a property fence line between sections 31 (T28N R2E) and 6 (T27N R2E). Further investigation found that channelized flow persisted downstream of the fence property line. A manmade pond had been constructed adjacent to the stream, however the creek does not flow through the pond. Piping of the discharge around the wetland to the property fence line between sections 31 (T28N R2E) and 6 (T27N R2E) where the stream channel begins would avoid wetland impacts. The practicability of this third alternative is a function of the level of treatment necessary to legally discharge directly to the stream channel of Unnamed Creek 31-14.



A fishery survey was completed on Unnamed Creek 32-16 at South Pine Road approximately .3 mile downstream of the confluence with Unnamed Creek 31-14. A large pool was present at the road bridge that was approximately two feet deep. Much of the stream upstream of the road flowed through a sedge meadow wetland that consisted of sedge hummocks in the channel. A defined channel was present, however braiding was observed through the hummocks within the channel. The stream classification survey began approximately 25 meters above South Pine Road and continued upstream for 70 meters. The pool created by the road bridge was not included in the station since it is an atypical habitat feature in the reach. At the start of the survey the stream channel was not braided, however within 25 meters the channel became narrower and began to braid. Within the 70 meter station the fish community consisted of creek chub, central mudminnow, northern redbellied dace, pearl dace, brook stickleback, fathead minnow, green sunfish and reddsides with the dominant species being central mudminnow and brook stickleback. The percent of fish tolerant to low dissolved oxygen conditions was 80%, however this percentage would have likely been higher if the survey continued further upstream. Most of the fish collected in the last 45 meters of the station were young of the year brook stickleback and central mudminnows. These species are considered tolerant of low dissolved oxygen conditions.

Upstream from the survey location, the habitat and flow conditions did not appear to change substantially, suggesting the fish community was likely similar to that surveyed. Fish were observed without sampling equipment in a few pools. Most of the stream consisted of a narrow (<18 inches) channel overgrown with bank vegetation. Fish were not seen in these areas.

One reddsides was found within the 70 meter stream classification station, however it was captured immediately upstream of the bridge pool at the start of the station where the highest numbers of fish were found. Reddsides are listed as a special concern species in Wisconsin but in Marathon County the species is commonly found, particularly in the western half of the county. Many of these streams are "flashy" and are impacted by non-point source pollution from both urban and agricultural runoff and experience weak baseflow conditions.

Recommended Classification:

A Limited Forage Fish classification best describes the fish community of Un-named Creek 32-16 upstream of South Pine Road. Given the similarity of habitat, this classification is also recommended for the entire length of Un-named Creek 31-14 where a channel with a defined bank and bed exist. The upstream origin of this classification is the property fence line between section 31, T28N, R2E and section 6, T27N, R2E. Upstream from this point, Un-named Creek 31-14 should be classified Limited Aquatic Life. Un-named Creek 32-16 downstream from South Pine Road to the confluence with Dill Creek should retain the default classification of Fish and Aquatic life in recognition of the increasing number of fish intolerant to low DO and the presence of reddsides.

Effluent limit recommendation:

A discharge to the wetland in the headwaters of Un-named Creek 31-14 would be expected to adversely impact wetlands and does not meet the practicable alternatives test of NR103. It therefore cannot be allowed.

A discharge to the portion of Un-named Creek 31-14 already possessing a channel would not impact wetlands and could be allowed. A review of Edgar's facility file found reddsides residing in Scotch

Creek just downstream of the Edgar WWTP outfall. Scotch Creek is listed in NR104 as Limit forage fish and the Edgar effluent limits are those listed in NR104.02(3) (a). Since these limits seem to be protective of the redbreasted dace at the Edgar location and since a substantial distance (~one mile) exists between this alternative outfall location for Unity and the location where the redbreasted dace were found (and the upstream extent of the fish and aquatic life designation), limits listed in NR104. 02(3) (a) are deemed adequately protective for discharge to Un-named Creek 31-14.

Practicable alternatives under NR103

A previous evaluation of alternatives to continued discharge at Unity's current location (Facility Plan; Wastewater Treatment Facility, Unity – December, 1997) concluded that directing the effluent toward Dill Creek would include treatment to meet limitations of NR104. 02(3) (a) and was deemed not practicable given that a much cheaper legal alternative was available. That alternative was continued discharge at the existing location. This evaluation has concluded that directing the discharge to Un-named Creek 31-14 would also require treatment consistent with of NR104. 02(3) (a). Had this alternative been evaluated during facilities planning, it would have yielded an alternative somewhat less expensive than piping the discharge all the way to Dill Creek. However, the added expense of treatment to meet of NR104. 02(3) (a) would still make this alternative considerably more expensive than the alternative selected and constructed.

Discharge to an appropriate location of Un-named Creek 31-14 at limitations contained in NR104. 02(3) (a) is a legal alternative to the current wetland discharge and is available for the village to utilize as a way of avoiding wetland impacts. However, due to the substantial cost difference between the continued use of the existing (new) facility and building a new WWTP to meet the requirements for discharge to Un-named Creek 31-14, the Department does not find it practicable under NR103 and will not require the village to move the outfall or upgrade the WWTP. The decision to move the outfall and further upgrade the WWTP is therefore up to the Village.

