

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: October 15, 1991

FILE REF: 3420

TO: Chuck Burney - WW/2

FROM: Tom Gilbert - WW/2 

SUBJECT: CBOD Limits for Land Disposal Systems

In accordance with NR 206, land disposal system effluents must meet a monthly average BOD of 50 mg/l. This chapter makes no specific reference to carbonaceous BOD (CBOD) but NR 206.06 does allow for the establishment of alternative requirements, including alternative effluent limits. The City of Barron has requested CBOD limits for their land disposal system and we have given them a CBOD limit of 50 mg/l as an interim limit in their recently reissued permit. The permit also notes, however, that the final CBOD limit will be determined as part of Barron's currently ongoing facility planning work. The City of Sauk City has also expressed an interest in obtaining CBOD limits. The purpose of this memo is to establish a general policy regarding CBOD limits for land disposal systems.

The 50 mg/l BOD was originally established to ensure that land application was preceded by secondary treatment processes. The 50 mg/l limitation was established in lieu of the normal 30 mg/l limit in recognition of the fact that BOD is less critical for land application systems and to allow for the use of lagoon systems which may have difficulty in consistently complying with a 30 mg/l BOD limit. It appears that our intent in establishing this limit was similar to the justification for the subsequent EPA redefinition of secondary treatment. I have looked to NR 210 which addresses "treatment equivalent to secondary treatment" and CBOD, as the basis for a parallel policy for land disposal systems.

In accordance with NR 210.05(1)(d), a CBOD of 25 mg/l may be substituted for the 30 mg/l BOD limit for discharge to fish and aquatic life waters. Facilities eligible for "treatment equivalent to secondary treatment" may obtain a BOD up to 45 mg/l and a CBOD up to 40 mg/l. The permittees must provide information as specified in NR 210.07(4) to justify CBOD limit requests. This information consists of paired sampling in January and July to demonstrate that some nitrogenous oxygen demand is present in the BOD results.

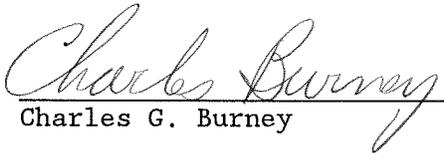
This procedure agrees with EPA's guidance on this subject which states that the CBOD limit should be set 5 mg/l less than BOD, if the BOD limit is between 30 and 45 mg/l. Above 45 mg/l, the BOD/CBOD relationship (5 mg/l difference) may not apply and the EPA guidance recommends that any higher limit should be based on an established relationship between BOD and CBOD. Although the 50 mg/l BOD limit is outside this range, it is not recommended that we use a BOD/CBOD relationship as the basis for a CBOD limit. The relationship between CBOD and BOD is complex and dependent on many changing factors. It would be difficult to establish a valid relationship and a CBOD limit. This effort also seems unnecessary when one considers that our primary goal is to ensure the use of secondary treatment processes, and that CBOD is effectively removed by the soil and we do monitor nitrogen separately.

It is proposed that a CBOD of 45 mg/l be used as an equivalent limit to the 50 mg/l BOD limit if supporting information is provided to establish that the BOD results are being influenced by nitrogenous oxygen demand. This supporting information should consist of paired sampling for at least one cold and one warm weather month. It is recommended that a minimum of 8 paired samples per month be taken, and that the sampling be done in the months of January and July. Different sampling months may be considered on a case-by-case basis.

This proposed policy pertains strictly to the question of substituting a CBOD limit for a BOD limit. If a facility is having difficulty in complying with other effluent limits or groundwater standards, then the request for CBOD limits should be considered in the context of a comprehensive evaluation of the facility. It may not be necessary or appropriate to issue CBOD limits if the permittee is also addressing other compliance problems at the time of the CBOD limit request.

If you concur with this policy, please sign below.

APPROVED:



Charles G. Burney

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cc: Wastewater Supervisors
Mary Jo Kopecky - WW/2
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