

Because of these differences, commenters were concerned that it would be inappropriate to transfer total nitrogen limitations from poultry to red meat subcategories. Based on the evaluations discussed below, EPA is considering transferring total nitrogen limitations from poultry to red meat subcategories for the final rule.

EPA has performed a comparison of the poultry and meat processing wastewaters after anaerobic lagoon treatment (*See* DCN 100765). In this comparison, using data from surveys and sampling episodes, EPA evaluated parameters which are commonly used to determine the characteristics of wastewater for biologically-based treatment systems. These parameters included 5-day biochemical oxygen demand (BOD), chemical oxygen demand (COD), oil and grease, nitrogen, phosphorous, and total suspended solids (TSS) as well as biokinetic parameters (*i.e.*, maximum specific growth rate, the half saturation constant, decay rate, and yield coefficient). EPA concluded that wastewater strength and biodegradation rates of poultry processing wastewater and meat wastewater are similar and fall within the same general ranges (*e.g.*, the average concentration for COD in the poultry processing wastewater was approximately 851 mg/L compared to 961 mg/L and for meat processing wastewater). However, EPA found the average TKN and ammonia concentrations of meat processing wastewater are somewhat higher than those of poultry processing wastewater (*e.g.*, 265 mg/L TKN for meat compared to 109 mg/L TKN for poultry; 162 mg/L ammonia for meat compared to 54.5 mg/L for poultry). Nitrogen in poultry processing and meat processing wastewaters after anaerobic treatment is primarily present as ammonia. Since the substrate in both types of wastewater is the same and the nitrification systems are universal, it is reasonable to apply treatment systems used for nitrifying poultry wastewater may to meat processing wastewater. However, higher ammonia and TKN concentrations in meat wastewater after anaerobic treatment may warrant modifications in design and operational characteristics of the treatment system; therefore, EPA has included costs for such modified design and operational characteristics when estimating compliance costs for meat products facilities. For example, higher TKN can result in a BOD:TKN ratio that is lower than what is needed to achieve denitrification and, as discussed in Section III, EPA has included costs for an additional carbon source such as

methanol, when appropriate, to achieve the needed BOD:TKN ratio.

EPA notes that treatment systems for BOD removal, nitrification, denitrification, and phosphorus removal systems are universal. This observation is consistent with our review of treatment systems of both industries which reveals that many of the treatment processes used to treat poultry processing wastewaters are also used to treat meat processing wastewaters. Thus, EPA expects that many of the same modifications to existing poultry processing plants for enhancing biological nutrient removal can be used for meat processing wastewater treatment options. However, EPA recognizes that when meat processing facilities incorporate these enhancements specific operating parameters and treatment effectiveness may be different than for poultry facilities, depending on the specific characteristics of the influent wastewater. EPA requests comments and data that would help to establish the differences and similarities between poultry and meat processing wastewater, and the implications of these similarities and differences for the relative treatability of each.

In its consideration of the total nitrogen reductions, EPA thought that Ultimate BOD (UBOD) analyses performed on wastewater from poultry and meat facilities could be used to determine whether the carbonaceous and nitrogenous portions in BOD are similar (or not) at the two types of facilities. While EPA has not yet fully evaluated this, EPA collected samples and conducted UBOD analyses (using Standard Method 5210C and EPA Method 353.1) in samples of raw wastewaters and treated effluents from one poultry and one meat facility. From the poultry facility (episode 6493), EPA analyzed UBOD in eight samples collected on two sampling days at four sampling locations. From the meat facility (episode 6496), EPA analyzed six samples collected on three days at two sampling locations. The analysis of UBOD provides measurement of dissolved oxygen (DO), nitrate/nitrite, CBOD, and nitrogenous BOD (NBOD) in a sample over a period of 25 days. (NBOD is calculated by applying a multiplier of 4.57 to the nitrate/nitrite concentration value.) For each sample, there are 16 measurements of each parameter as a result of analyzing aliquots every day for the first five days and every other day until the end of the 25-day time frame. EPA will use these measurements, located at DCNs 165460 and 165470, to evaluate the degradation rates of BOD and nitrification in the

wastewaters. To evaluate these rates, EPA intends to compare the general pattern of the degradation curves for the samples for each facility. However, EPA is concerned that the UBOD data for the poultry facility may be minimum values, because total DO depletion occurred on one or more days for all samples, which would artificially limit measured BOD on subsequent days. Thus, EPA is not sure how useful this analysis will be in comparing poultry and meat processing wastewaters. EPA requests comment on this issue.

EPA may also use the UBOD data to evaluate some other aspects of its costing model. For example, for some facilities it was necessary for EPA to estimate aerobic volume; in order to do this, EPA needed both BOD degradation and nitrification rates. For these estimates, EPA derived default biodegradation rates based on literature and some limited data submitted as part of the MPP detailed survey. EPA may be able to use the UBOD data to evaluate the estimates of the biodegradation rates and to develop any appropriate adjustments for MPP wastewaters.

EPA solicits comments on its initial comparison of poultry and meat processing wastewaters. In addition, because industry representatives have expressed some concerns about the applicability of UBOD analyses to total nitrogen performance, EPA solicits comments on the appropriateness of using the UBOD data to determine total nitrogen performance in the two subcategories and whether other information would be more relevant. EPA also solicits comments on the applicability of the UBOD data for estimating BOD biodegradation rates and nitrification rates for use in its cost model. Further, EPA solicits additional data on UBOD in raw wastewaters.

E. Data Selection for Oil and Grease Loadings and Limitations/Standards

The proposed limitations for oil and grease were based upon data from EPA sampling episodes. For these samples, EPA used EPA Method 1664 to measure the oil and grease concentrations. Method 1664 uses normal hexane (n-hexane) as the extraction solvent, instead of Freon which is an ozone-depleting agent. Because EPA had developed its proposed limitations using Method 1664 data, it expressed the limitations as oil and grease measured as n-hexane extractable material (HEM). (Defined at 67 FR 8658).

EPA also had two other reasons for expressing the limitations as HEM. First, there are environmental concerns associated with the older methods that