

## PRETREATMENT CORNER

### **Food Processing Discharges and BOD Loadings**

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Any POTW that has food processing facilities discharging to its wastewater treatment plant knows the frustrations and uncertainties that result from such discharges to the sewer system. No two days are ever the same; wastewater characteristics may vary widely from day to day. While such discharges may not impact a larger POTW due to dilution from other wastestreams, they definitely have an impact on smaller POTWs. These impacts are often observed as higher organic loadings and excess fats, oil and grease at the influent to the POTW. Some biological treatment processes are more forgiving than others and can handle the variation in organics loadings; others are not, and it is up to the plant operator to be aware of the ever-changing wastewater characteristics.

It is a well known fact that higher strength wastewater costs more to treat than domestic-strength wastewater. If a POTW receives high strength wastewater discharges, it is in their best interest to establish a surcharge program, which is often based on the cost to treat a pollutant, such as BOD. No surcharge program is going to benefit a POTW, however, if the measured loadings from an industry are not representative of the day-to-day discharge. At the same time, the POTW influent loadings measured must be representative of the day-to-day discharge.

One or two abnormally elevated influent BOD daily loadings may result in an erroneous monthly average organic loading if say; only 8 to 10 samples are analyzed each month. In turn, the abnormally higher monthly average loadings may result in questionable organic projections in the POTW's annual wasteload management report. Furthermore, non-representative samples may cause a perceived reduction in available organic capacity, putting the POTW in a situation of being potentially organically overloaded.

So that leads one to question whether the once or twice a month sampling required in the food processing facility's wastewater discharge permit is adequate to determine the actual loadings from the facility. Take a prepared foods manufacturer, for example. One day, the facility may make a broth-based soup. The next day the same facility prepares a cream-based soup. By Wednesday, the facility is making egg salad or potato salad. Get the picture? If the facility's permit requires sampling and analysis twice per month and the facility takes these required samples the second and fourth Tuesdays of the month when they are scheduled to make a broth-based soup, what about those days not sampled when the wastewater is heavily laden with eggs, mayonnaise and sugar? So what is a reasonable sampling schedule? Perhaps the POTW can request that the prepared foods manufacturer take weekly samples for analysis and alternate the days of the week on which the samples are collected. Bear in mind, for the POTW to get a clearer understanding of its own influent BOD loadings, the POTW should also increase its sampling each week as well as alternate its days of sampling.

To implement an increased sampling strategy, it is necessary to have a good rapport with the industry staff and to explain why the increased sampling and analysis must be conducted. The situation could be presented to the industry such that, the industry agrees to the increased sampling and analysis or its permit limits may become more stringent and/or surcharges may be increased. It can also be explained that if the influent loading values are not reduced, the POTW may be required to upgrade its treatment plant, resulting in higher sewer rates to its customers. There is also the potential that the increased sampling and analysis is only conducted for a selected time period, say 6 months, until sufficient test data is reviewed to determine whether the BOD loadings vary as much as initially thought.

It is important to note that the POTW should also be evaluating BOD loadings from other areas of its collection system with uncontrollable loadings, as from commercial or institutional establishments, in an attempt at determining all sources of organic loadings. From a pretreatment coordinator's perspective, 1 + 2 does not always equal 3, in that there is always a small amount of unaccounted-for pollutant loading when trying to conduct a mass balance of pollutants entering the treatment plant. So how much unaccounted-for BOD is acceptable? Does DEP or EPA know? Questions to ponder until next time.