Dadeville WWTP Update

Lake Watch

In early 2007, Lake Watch of Lake Martin raised concerns about past and ongoing violations of Dadeville's national permit discharge elimination system (NPDES) permit for its wastewater treatment plant. During the same timeframe announcements were abound regarding plans for new additions to the Thweatt Industrial Park on the outskirts of Dadeville--the proposed AREA Ethanol Plant, in particular. It seemed obvious at the time to ask, "If the city couldn't comply with prescribed permit provisions in the past, how can it handle additional wastewater loading that would result from proposed industrial expansion?"

An adequate answer was hard to come by then. Fast-forward to today, and the same question remains in search of a satisfactory answer. As you may recall, Lake Watch and HOBOs were very vocal at the public hearing last June when Dadeville's treatment plant permit was up for renewal. Nevertheless, the new permit was eventually issued in July 2007 with essentially the same limits for various water quality parameters.

However, one key change that did occur in response to Lake Watch's urging was the lowering of an important stream flow variable that is used by ADEM to model the plant's waste load allocation. This variable is called the 7Q10 flow for the receiving waters of the plant discharge, in this case, Chattasofka Creek. The 7Q10 is hydrology jargon for the lowest stream flow for seven consecutive days that would be expected to occur once in ten years at the location of the discharge point into the creek. A high 7Q10 flow rate indicates that receiving waters have enough flow to assimilate/dilute more municipal or industrial wastewater discharge than low 7Q10 flows that would have a lesser assimilative capacity.

Before last year's permit renewal, the 7Q10 flow rate underpinning Dadeville's permit discharge limits was assessed at 4.77 cubic feet per second (cfs). At the urging of Lake Watch, ADEM reassessed Chattasofka Creek's 7Q10 and lowered the rate to 3.55 cfs. This flow rate went into effect with the permit reissue last July. However, some field sampling done by Lake Watch last year during the drought presented a compelling case to ADEM for yet another reassessment of this important variable.

Last week, ADEM's Water Quality Branch reported that Chattasofka Creek's 7Q10 rate has again been revised to a much lower flow of 1.52 cfs, an overall three-fold decrease. This flow value will be used in all future waste load discharge limit calculations for subsequent treatment plant permit revisions or new permits. For example, under the old permit with a 4.77cfs 7Q10, the in-stream waste concentration resulting from the plant's current wastewater processing design capacity of 0.42 million gallons per day (mgd) was 12% of stream flow during the lowest assessed creek flow conditions. The current revised permit with a 3.55 cfs 7Q10 at existing plant handling capacity results in a 23% waste load concentration for the creek If or when the plant is increased to a design capacity of 0.75mgd, the newly assessed 1.52 cfs 7Q10 flow rate will result in a 43% in-stream wastewater concentration for Chattasofka Creek. Aquatic biota in the vicinity and downstream beware!

So, what's next? Because of Dadeville previous permit violations, they've been operating their treatment plant under an ADEM Consent Order issued last June requiring compliance with provisions of their NPDES permit within one year. They also were fined $6,500 for these

violations. Regardless, the latest reports available on EPA's website reveals that Dadeville again violated discharge permit limits for bacteria in February 2008 (general fecal coliform bacteria) and had not submitted required reports for the discharge of key nutrients impacting stream and lake water quality -- total nitrogen and total phosphorus. Also, last year the Alabama Attorneys General's Office filed a lawsuit against Dadeville for its permit violations, but this case has yet to be adjudicated.

But all of this may become moot because Dadeville recently submitted a request to ADEM to increase its design capacity to process up to 0.75 mgd of wastewater from the current 0.42 mgd permitted capacity. Officials at ADEM say that a new two-tiered permit will be required as a result of the new 7Q10 low flow revelation and Dadeville's desired increase in plant design capacity. Tier 1 of the draft permit will pertain to the current design capacity and Tier 2 for the proposed increased capacity. Tier 1 provisions will include more stringent discharge limits for ammonia (NH3-N), organic solids (carbonaceous biological oxygen demand 5-day (CBOD5), and dissolved oxygen (DO) resulting from the lowering of the 7Q10 for Chattasofka Creek from 3.55 cfs to 1.52 cfs. This means the current permitted concentration limit for NH3 drops from 5 mg/L to 3 mg/L, CBOD5 drops from 20 mg/L to 14 mg/L and DO would remain the same at 6 mg/L.

Tier 2 of the permit, for an increase in processing capacity from .42 to .75 mgd, will likely reduce the permit levels for the above waste load allocation variables even further. We'll see what these levels are, either when the draft permit is released to the public by ADEM or possibly earlier by the City of Dadeville.

The bottom line for all of this is that the bar has been raised for Dadeville's current plant operations at current capacity and will likely rise even more if and when Dadeville attempts to increase plant capacity to 0.75 mgd. Recommendations so far from Goodwyn, Mills, & Cawood Inc., the City's engineering consulting firm, point to continued rehab of the existing plant and sewage pipe system. Consideration of other options such as piping the City's waste to Alex City where abundant plant capacity and state-of-the-art processing equipment awaits, or acquisition of a new state-of-the-art modular sewage treatment plant or plants appear not in the cards at this time.

However, given the more stringent permit limits ahead and if and when full consideration is given to the total life cycle cost of the operation and maintenance of these and other possible options, it seems the rehab option may not be the best course of action, especially for the potential downstream threat to Sandy Creek and its embayment in Lake Martin. At a meeting with Mayor Joe Smith on May 29th, leaders from Lake Watch and HOBOs urged the mayor and other city officials to fully consider all options to ensure the best bang for the buck for needed investment in the City's sewerage infrastructure.

It's expected that sometime between July and September 2008 the draft permit reflecting the operating provisions and discharge limits for each design capacity or discharge tier will be released for public review and comment. Lake Watch and HOBOs will request another public hearing to ensure the concerns of all sides are aired and appropriately considered. Stay tuned.