



**Environmental
Protection Agency**

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 19, 2010

RE: BELOIT WWTP
NPDES PERMIT NO. 3PB00005
FFY 2011 CEI

Mr. Roger Greenwalt, President
Board of Public Affairs
P.O. Box 276
Beloit, OH 44609

Mr. Greenwalt:

On November 9, 2010 we met with Kimberly Reeder and Jim Brown of United Water to conduct an inspection of the Beloit wastewater treatment plant and to discuss the upcoming renewal of the NPDES Permit. The permit is used to regulate the quality of effluent discharged from the plant.

The treatment plant was operational at the time of the inspection. The aeration tanks in the Chicago system had good color and mixing. The contents of the aeration tanks of the aero-mod system appeared dark, but had good mixing. The contents of the aeration tanks should be a medium-brown color and should have an "earthy" odor. The UV disinfection system was not operational since the inspection was conducted after October 31st. Following are topics discussed during the inspection.

1. The muffin monster was not operational at the time of the inspection. Kimberly indicated that the muffin monster could be repaired at a cost of \$8000.00. This writer indicated that muffin monsters have limited benefit and that the village should consider delaying any repairs to the muffin monster until future upgrades to the treatment plant are determined. It was further recommended that the muffin monster should be replaced with a fine screen as part of any plant upgrades. Fine screens are much more effective at removing grit, sticks and rags entering the plant, and are more protective of downstream equipment than are muffin monster.
2. The equalization tank is a passive system. As the water rises in the wet well of the pump station, water flows into the equalization tank through a wet well overflow pipe. The wastewater enters the equalization tank through a pipe at the base of the tank. However, the wastewater discharges from the equalization tank to the pump station through the same pipe. The design provides no control over the return of wastewater to the pump station from the equalization tank. As a result, wastewater flows from the equalization tank to the aeration tanks at times when the tanks may be hydraulically stressed.

Any upgrades to the treatment plant should include an evaluation of the return system for the equalization tank. Facilities that provide a controlled return of wastewater from the equalization tank to the pump station should be included in any upgrades. In addition, flow studies should be conducted to verify proper size of the equalization tank relative to the inflow and infiltration entering the plant.

3. A flow meter must be installed on the outlet from the equalization tank so that occurrences, duration and volume of any overflows can be monitored.
4. One possible option for upgrading the treatment system that was discussed during the inspection would include converting the aero-mod system into an extended aeration system, abandoning the rectangular clarifiers associated with the Chicago system, and diverting all wastewater from the aeration system into new circular clarifiers. This is one possible option for renovating the plant that should be evaluated once the new permit limits are available.
5. It was the understanding of this writer that the current aeration system is not conducive to routine preventive maintenance. It was understood that entire aeration systems had to be taken out of service for preventive maintenance rather than only a portion of the system. Any renovation of the plant must include adequate redundancies and proper design to enable only portions of the plant to be taken out of service for preventive maintenance while the remainder of the plant is fully functional.
6. The electrical supply providing power to the plant was described as a "Delta" service. It was explained to this writer that the system is not a preferred option for supplying power to the plant and was dangerous to maintain in certain situations. As agreed, the system should be evaluated for replacement. We also discussed evaluating the installation of a three-phase converter as a possible option.
7. The NPDES Permit will be renewed in the next few months with phosphorus limits at the final discharge point. It was recommended by this writer that the village discuss with the design engineer the possibility of renovating the aeration tanks in such a way as to permit phosphorus removal using various oxygen zones within the tanks. This is one option used by communities to reduce phosphorus as an alternative to chemical addition such as the use of ferric chloride to precipitate the phosphorus prior to settling in the clarifiers.
8. It was the understanding of this writer that the wastewater treatment plant has not had a functioning back-up generator dating back to 2007. The plans for renovating the treatment plant must include a new back-up generator that has sufficient

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capacity to operate the entire treatment plant. It also must have automatic switching capabilities to activate routinely when the primary power source is lost.

The village of Beloit received a notice of violation from Ohio EPA regarding violations of the compliance schedule in Part I,C of the NPDES Permit. The letter referenced Item 1a and 1d of the compliance schedule. Both items required the village to implement the recommendations of the two inflow and infiltration studies. One study was completed in 1995 and the second was completed in 2008. As discussed with Kimberly and Jim, the village must review the two inflow and infiltration reports, and provide a description of the actions taken by the village to implement each recommended action.

Finally, the NPDES Permit renewal will be sent to the village within the next few months. The initial permit will be in draft form for 30 days. The initial issuance of the draft permit is to enable the village and its representatives to review the permit, and ask any question or make any comments that may come up during the review. Corrections to the permit can also be made during this review period. However, after the 30-day review period, the permit will be issued final with any revisions incorporated as the result of the public review. Therefore, it is important that the village take the opportunity to carefully review the draft permit and provide any comments to Ohio EPA during the 30-day review period.

You may contact this writer at (330) 963-1251 or at john.kwolek@epa.state.oh.us to discuss any questions you may have regarding this inspection report or the draft permit.

Respectfully,



John Kwolek
District Engineer
Division of Surface Water

JK/mt

cc: Kimberly Reeder, United Water