



CITY OF AUGUSTA, GEORGIA

A 35 MGD plant; Treating 14.4 MG digester volume to increase volatile reduction

The Problem

The City of Augusta, Georgia, wastewater treatment plant, with an average daily flow of 35 MGD, is a modern secondary activated sludge plant. Both raw primary sludge and waste activated sludge are thickened and stabilized in three sets of anaerobic digesters. City personnel were experiencing poor solids reduction, high levels of hydrogen sulfide odors, inability to supernate, and inability to maintain temperature in the digesters above 80 degrees in the winter months. Heat exchangers and mixers were unsuccessful in maintaining required process temperature. Plant personnel had to extract the sludge from the primary digester put it through a centrifuge to dewater and then add the sludge to the secondary digester for further digestion before disposal at a sludge farm.

The Treatment Program

The City Staff isolated a set of digesters to treat with BYO-GON PX-109®. Digester #5 has a capacity of 1.7 MG, an operating temperature of 75 degrees and loaded with about 50,000 gallons per day of primary sludge. BYO-GON PX-109® was injected at a shock dosage rate of 2.3 gallons per million gallons capacity over twenty-four hours, followed by a daily maintenance dosage of 90 ounces per day. The product was added to the raw sludge feed line and injected over a twenty-four hour cycle.

Results:

During the first ten days, an average of 90,000 gallons was sent to the centrifuge, which was reduced to 57,000 gallons per day. In addition, plant personnel were able to take the centrifuges off-line and decant the primary digester for the first time in fifteen years. The BOD of the decanted supernate averaged just 39 mg/l higher than the incoming BOD of the raw sewage. Under good operating conditions, the supernate from a digester can be five times stronger than the raw wastewater BOD.

- Increased volatile reduction (55 to 70%)
- Reduced biosolid volumes (-40%);
- Decreased polymer usage (-60%)
- Improve dewatering efficiency.

Summary:

The addition of BYO-GON PX-109® has resulted in the improved performance of the digesters, even at low temperatures. The City is currently adding BYO-GON PX-109® to all of their anaerobic digesters. The overall benefits include reduced odors, ability to supernate digesters, and reduced BOD of supernate comparable to incoming waste.