

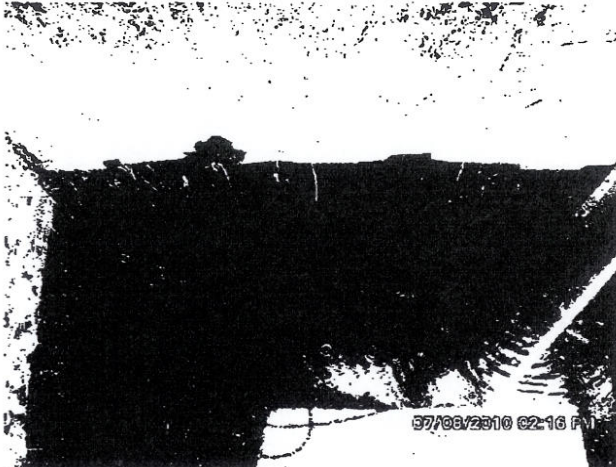


## Sewer Treatment Specialist, LLC

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On Friday, July 9<sup>th</sup>, 2010, Shane Ward and Gene Allison of Sewer Treatment Specialist, LLC aided Iqbal Properties, LLC with an ongoing treatment plant problem. The 25,000GPD extended aeration, activated sludge treatment plant has been experiencing an upset condition in the clarifier and chlorine contact chamber since the Winter of 2009.

The treatment plant has experienced a pin flock condition in the clarifier, which was initially thought to be a low dissolved oxygen problem due to excess grease in the collection system and treatment plant. Sewer Treatment Specialist, LLC inoculated the plant with 10 pounds of Sewper-Rx bacteria – a bacteria used by the municipalities of Meridian, MS, Pass Christian, MS and Eagle Pass, TX with great results. The bacteria is a known digester of grease and performs well over a wide range of temperatures, DO and loading characteristics.

Besides the pin flock issue, the chlorine contact chamber was experiencing noticeable eddies and currents throughout the day. These currents would cause blooms of light-colored sludge to erupt from the bottom of the chlorine contact chamber. Sewer Treatment Specialist, LLC initially attacked the most obvious deficiencies – lack of controllable runtime on the blowers, lack of alternation on the blowers and improperly positioned skimmers in the clarifier and window.

The blower control panel was modified by installing a mechanical timer and alternating relay. This modification allowed the treatment plant to have rest times where the blowers did not run and the skimmers and sludge returns did not operate. Normally, we see almost instantaneous results but the overall effect was minimal at Chahta. All air drops were pulled and the diffusers were flushed and inspected. The diffusers were put back in service but only minimal improvements were noticed.

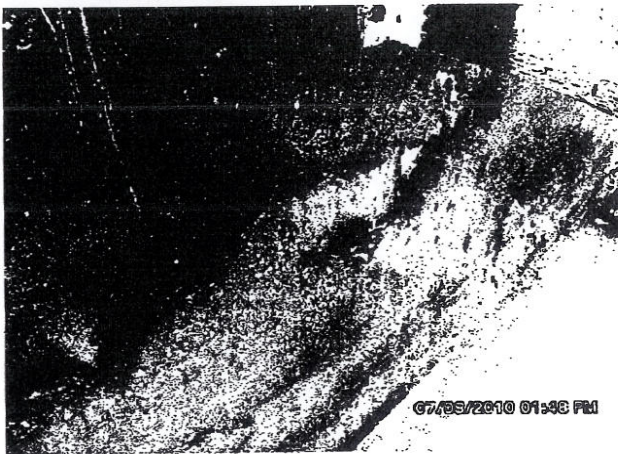


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As a test, Sewer Treatment Specialist operators used hydrated lime to help settle out the clarifier. The plant was shut off, the clarifier limed and changes noted. The clarifier quickly settled out and only clear water was transferring through the weir... but the sludge blooms in the contact chamber continued. We measures sludge levels in the contact chamber and there was a six inch blanket at the bottom. The sludge blooms were noted to be happening above the floor of the contact chamber so it was decided

that the contact chamber should be pumped down and inspected.

Once the clarifier was pumped down, we entered and inspected the entire length of the contact chamber for clues to the strange currents. We found several holes between the clarifier and the contact chamber, several of which were low enough to transport sludge. We measured the flow of all the cracks, fissures and holes and arrived at a rough figure of six gallons per minute entering the contact chamber – or ~6,000 gallons per day – 25% of the daily flow was entering the contact chamber without passing through the weir.

If the clarifier is receiving its' allotted flow through the weir but is also receiving an additional 6,000 gallon load through cracks and fissures, the net treatment in the clarifier is going to be greater than the designed loading. The currents caused by these flows will keep sediment stirred up and not allow it to drop out of suspension. The currents traveling from the clarifier to the contact chamber will not allow the solids to coalesce and settle.

This problem is compounded by an abnormally narrow weir that is set low in the water. This causes a rapid flow through the weir to the contact chamber. The baffles in the contact chamber are also inadequate to slow flow and allow for good mixing. Short circuiting can and does take place due to the improperly set, sized and fitted baffles.

This treatment plant was supposed to be installed according to an engineers design. The plant, as it sits now, does not follow accepted standards of treatment plant design or do the materials lend themselves to crisp, neat construction.

The plant was stamped by Dammon Engineering. The letter of completion should exist and should have been signed by the same engineer. The post installation inspection should include a writeup of any deficiencies found. We will visit the DHH Regional Engineering Office and research the paperwork associated with this treatment plant installation.

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The plant was installed by MoDad and carries a 20 year warranty against leaks. Since this plant is well within the warranty period (installed in 2005), the installer and engineer should be responsible for the construction and design deficiencies. Additionally, I recommend having an engineer review the paperwork associated with this installation and also write a professional opinion on the problems surrounding this installation.

Shane H. Ward

Sewer Treatment Specialist, LLC