

## Leading Environmental Firm Reduces Chemical Usage and Saves US\$1M with KlarAid\* Wastewater Treatment

Shamrock Environmental Corporation  
Greensboro, NC, USA

### Challenge

Recognized globally as a leading player in the environmental industry, Shamrock Environmental Corporation is dedicated to reducing waste liability, maintaining a safe work environment and empowering employees to achieve their best. Therefore, it was no surprise when the company took immediate action upon discovering that the central treatment process in its new industrial wastewater facility in Greensboro, North Carolina, was using an unhealthy level of chemicals.

"The acid break technique we were using was effective at treating the wastewater, but the large volumes of chemicals were too expensive and they were harmful to plant equipment and potentially hazardous for employees," said Steve Davis, plant manager.

The acid break process involved reducing the pH of the wastewater to less than 1.0 by adding enormous amounts of acid, typically sulfuric acid. "We would go through a tanker full of acid in a couple days," according to Davis. "And then we would need to bring the pH back up to neutral using a similar amount of sodium hydroxide."

Another challenge was that the acid break method generated sludge that needed to be hauled to a separate Shamrock facility for solidification before it could be sent to a landfill. In addition to the labor and transportation cost involved in loading and transporting the sludge, there was also the opportunity cost of tying up the solidification system instead of using it to generate revenue from paying customers.

Davis turned to GE Water & Process Technologies for a solution that would use fewer chemicals without requiring the off-site solidification of sludge, reduce waste liability, and provide a safe work environment for employees.



### Solution

Barry Owings, the local GE representative, proposed that the acid break method be replaced with KlarAid PC2710, a polymeric coagulant that requires little or no adjustment of pH.

Bench top tests were performed on starch blends from seven different vendors. The tests were repeated for several days to account for the varying characteristics of the industrial wastewater processed at the Greensboro plant. PC2710 was selected because it was the only product able to consistently remove colloidal and emulsified material in all the wastewater test samples.

### Results

"By switching to PC2710 from the acid break method, we have been able to reduce our chemical usage by over 80%, for a saving of almost one million dollars during the first eight month period," reports Davis.

"The reduction of chemical usage means a safer working environment for our employees. They used to have to unload dangerous chemicals six or seven times per shift, a process that is now performed only once each day."

Davis also takes pride in the environmental benefit of reduced chemical consumption. "With our new process, significantly fewer chemicals need to be manufactured and transported to our plant; we are consistently producing higher quality water."

An additional benefit is that PC2710 is specifically designed to form dense, easily dewatered sludge. The Greensboro plant utilizes a filter press to dewater the sludge prior to sending to a landfill and there is no longer a need to haul sludge for off-site solidification.

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