Automated Dosing System
Case Study
Clarksville, Tennessee
November, 2007

The City of Clarksville, Tennessee has utilized calcium nitrate to control hydrogen sulfide odors in its wastewater collection system since the early 1990's. They have always used the conventional dosing method of one constant rate pump feeding the same rate 24 hours a day. At some sites a second timer controlled pump will be utilized to increase the dose rate during peak flow periods. Like most other wastewater systems they have always been able to achieve adequate levels of odor control utilizing this method. However, as with many other wastewater systems, increases in the size of their collection system and increases in chemical prices have inflated their chemical budgets to the point where they are now looking for alternative technologies to provide effective odor control in a more cost effective manner. One of the new technologies they have evaluated is the AWS Automated Dosing System, a proprietary, patent pending system which applies odor control chemicals in response to the system demand rather than at a continuous set dose rate.

The AWS Automated Dosing System incorporates high quality microprocessor based components from ACT Inc. for reliability and durability. Our systems provide a touchpad and display for easy operator interface.

In November, 2007 AWS installed an Automated Dosing System at the Sugar Tree #1 wastewater pumping station in Clarksville, Tennessee shown below. For several days prior to start up of the AWS system, the City's existing system was monitored, sampled, and optimized. The optimal dose rate for odor control utilizing the City's conventional system was determined to be 30 gallons per day of calcium nitrate. The AWS system was then started up, and after 4 days of hydrogen sulfide monitoring and dose rate optimization, the optimal dose rate utilizing the AWS system was determined to be approximately 15 gallons per day of calcium nitrate. The criteria used at the odor monitoring point was <0.1 ppm sulfide with nitrate residual of 5 ppm. All monitoring and sampling was done simultaneously by AWS and the City.

This is a picture of the AWS Dosing system installed inside the Sugar Tree #1 pumping station in Clarksville, TN.

The results of this study show that optimizing odor control chemical dose rates utilizing the AWS Automated Dosing System can reduce chemical consumption by as much as 50%. The 15 gallons per day savings seen at the Sugar Tree #1 site equates to an annual savings of nearly $11,000 per year. The Sugar Tree #1 site is a relatively small site, therefore the savings a larger site could be very significant.

"I have been in the odor control business for almost 10 years and I never expected to treat this level of hydrogen sulfides with this low of a dose rate of chemicals. With odor control chemicals you have a theoretical dose rate, and you have the real world dose rate. With the AWS system I am seeing dose rates down near the theoretical rates" said Mike Crawford, Wastewater Collection System Analyst for the City of Clarksville.

The City has been very pleased with the AWS Automated Dosing System and is planning to trial the system at several other sites, and is also planning to use the AWS system in tests with alternative chemicals to calcium nitrate. "*I have been in the odor control business for almost 10 years and I never expected to treat this level of hydrogen sulfides with this low of a dose rate of chemicals. With odor control chemicals you have a theoretical dose rate, and you have the real world dose rate. With the AWS system I am seeing dose rates down near the theoretical rates*" said Mike Crawford, Wastewater Collection System Analyst for the City of Clarksville. It is estimated that the City will save several hundred thousand dollars per year with the AWS system when installed in all 20 locations. For reference contact Mike Crawford, Wastewater Collection System Analyst, at 931-216-1187.