Selma-Kingsburg-Fowler CSD Completes $4.1 Million Energy Efficiency Project

The Selma-Kingsburg-Fowler County Sanitation District (District) is located in Fresno County. The District collects, treats and disposes wastewater originating from the residential, commercial, institutional and industrial dischargers from the three member cities and parts of unincorporated Fresno County. The District operates and maintains the wastewater treatment plant and the sewer collection system. The District refurbishes and replaces each city's facilities. The member cities own the local sewer collection system, which includes sewers, lift stations, and appurtenances not owned by the District. The District serves an estimated population of 40,000.

The District's mission is to:

Operate and maintain the District facilities so that local, state and federal waste discharge requirements are complied with and the public health and environment are protected.

Provide adequate capacity to convey, treat and dispose of all wastewater so that the District can adequately serve the developing needs of its member cities and the surrounding area.

Operate and maintain District facilities so that annual costs are reduced to the lowest possible level that will safely sustain compliance with discharge requirements.

Under the leadership of General Manager Benjamin Munoz, Jr. the District staff completed several cost saving measures. Briefly, a disposal pond preventive maintenance program was employed, secondary clarifiers were repaired, Operating parameters were modified to streamline the operations of the biosolids drying beds, new equipment was purchased and installed such as the ECS House Industries brush aerators and Vaughn chopper pumps. The District received a PG&E rebate for the brush aerator equipment procurement project in the amount of $57,443. In all, by modifying operational parameters, making repairs, and the purchase and installation of updated equipment the District has saved an estimate $300,000.

The rebate for the brush aerator and cost savings that have been completed pales in comparison to the largest energy efficiency project rebate in the State of California to date. The rebate was received through the CalPOP program and will benefit from annual electrical savings. Quantum Energy Services and Technologies (QuEST) implements the California Wastewater Process Optimization Program (CalPOP) on behalf of PG&E.

The Program is designed to deliver cost-effective and persistent energy and demand savings to the wastewater sector. CalPOP has garnered success in implementing significant electricity and gas savings by delivering a comprehensive set of engineering services and rebate incentives to wastewater facilities operated by municipalities and utility districts throughout the PG&E service territory. Quest's no-cost engineering services focus on analyzing facility energy use and developing project recommendations tailored to customer needs. Customers receive detailed engineering audits that recommend appropriate measures for improving the efficiency and operations of wastewater treatment plants, and identify the associated measure costs, savings and rebate incentives. QuEST supports the Customers' project implementation process by providing technical, project management and financing assistance.

CalPOP completed the energy audit report and it was presented to the Board of Directors in August 2009. The report was done at no cost to the District. In the report there were three projects identified for the program. The aeration improvements and aerobic digester blower replacement projects were selected by General Manager Munoz.

The District received proposals from two engineering consulting firms for design and construction services. The Board of Directors accepted the proposal from Herwit Engineering as recommended by General Manager Munoz. The project engineer from Herwit Engineering was Gregory Harris, Mechanical Engineer. The Districts Project Manager was Supervising Engineer

Veronica Cazares. Design of the project began in September 2009. The majority of the equipment was pre-bid directly to the District to ensure the lowest cost for the equipment and to fix a large portion of the total project cost. The Construction contract was awarded to TNT Industrial Contractors, Sacramento Ca, in February 2010.

In summary, the project scope was as follows:

- Replacement of blowers at aeration basin no.3 and aerobic digester with high speed turbo blowers manufactured by APG-Neuros.
- Replacement of the fine bubble diffuser system (Sanitaire).
- Replacement of non-operational motor control centers with Allen Bradley Intellicenters.
- Installation of SCADA (automation) with a fiber optic back-bone and master control center in the Operations Building. The SCADA provides the District with dissolved oxygen (DO) control and monitoring to more efficiently operate aeration basin no. 3. The aerobic digester SCADA control also allows for DO control or air flow control.
- Restore the efficient operation of aeration basin no. 1 and 2.
- Installation of three metal buildings to house the equipment.

The District also gained the following benefits:

1. Restore capacity lost to non-operational systems.
2. New technology (First in the Valley).
3. CalPOP incentive check for $460,902.
4. Energy efficiency (Energy Cost savings of approximately $500,000 a year).
5. In addition to the monetary savings the project also reduces the Carbon (CO2) emissions by ½ million tons.
6. This project may also move the District to a better rate structure from E-20 to E-19 after PG&E monitors it for a few months, which would also be an additional ¾ cent saving per KW.

The CalPOP report dated July 6, 2010, verified that the savings from this project will be 4,544,688 annual kWH and 518.8 KW. The total ending cost for the Aeration System Improvements project was $3,743,004 with an estimated $499,882 in electricity cost savings, with an estimated simple payback period of 6.14 years. The CalPOP energy audit and verification report are posted on the website. The Districts website is skfcsd.org.

The District extends a special recognition for a job well done to the following:

District Staff – Scott Aguiar, Gabriel Jimenez, Operations staff, Jimmy Garcia, Rafael Gonzales, Maintenance staff, Veronica Cazares, Engineering staff, David Bacon, and Karen Steinhauer, Lab Staff.

Herwit Engineering – Gregory Harris, Kurt Gardner, and Steve Stoll.

TNT Industrial Contractor Inc. – Richard Stent, Josh Twist, Timothy Jones, and Randy Twist.

Board of Directors