

CITY OF SCOTTS VALLEY WASTEWATER TREATMENT FACILITY ANNUAL REPORT 2005

Plant Summary and Compliance

We are proud to report that for the sixth straight year, the City did not record a single discharge violation. For the year 2005, effluent suspended solids averaged 10 mg/L (a 96.1% removal rating), effluent cBOD's averaged 4 mg/L (a 98.2% removal rate), and effluent BOD's averaged 5 mg/L (a 98.0% removal rate). Many thanks to a very knowledgeable and dedicated treatment plant staff. Without, the continued high standards the City has become accustomed to, this would not be possible.

Overall 2005 was uneventful. "Uneventful" is typically a good thing in the wastewater industry as was the case in 2005. After experiencing higher than normal effluent suspended solids and BODs for the first few months of the year, we changed the plant's target MCRT to reduce the solids inventory. That apparently did the trick, because after effluent suspended solids averaged 16.25 mg/L for the first four months of 2005 we averaged 6.62 mg/L for the remainder of the year.

By installing a new gravity sewer line, we were able to actually eliminate the City's El Pueblo Lift Station in 2005. The addition of 150 feet of 8-inch gravity sewer line now allows wastewater to bypass the old station and flow directly into an existing sewer main. Eliminating the El Pueblo Station will save the City staff time and ongoing maintenance and operation costs associated with owning and operating the lift station. We are also just completing a design to totally reconstruct the City's Carbonero Lift Station. The Carbonero station is by far the largest station (in terms of volume) the City owns, pumping approximately half of the total daily flow received at the treatment plant. The City plans to bid the project this spring with construction being completed by summers end. The new station includes a three pump system and larger wet well.

The plant's average daily dry weather discharge flow was reduced from 0.822 million gallons per day (mgd) in 2004 to 0.701 mgd in 2005. This is a direct result of increased recycled water usage. The higher demand in recycled water equates to more water being reused for irrigation at local parks, schools, residences and businesses and less water being discharged to the Monterey Bay. The Scotts Valley Water District has been very diligent in pursuing new recycled water users, and it shows. After using a total of 11.5 million gallons of recycled water in 2004, recycled water usage leapt to 42.94 million gallons in 2005!

After the City was acknowledged by the California Water Environment Association (CWEA) with the Plant of the Year Award for the State of California for 2003, we did not participate in the 2004 competition. Treatment plants are not eligible the year after winning the statewide award. We have thrown our hat in the ring for 2005, but the results are not yet in.

Laboratory

2005 was as uneventful in the laboratory as it was in operations. Routine sampling and testing, internal and external quality control and assurance, continued as usual. The torrid pace of mergers and acquisitions in the lab supply business slowed considerably, so that it was not as difficult to locate and purchase supplies as it had been the year before. 2005 was permit renewal year, and the Dept. of Health Services granted another 2-year renewal through 2007, based upon the submitted application and subject to a laboratory inspection in 2006.

The one new initiative for 2005 was daily testing of reclaimed effluent for total coliforms and E. coli using the Quanti-Tray MPN (most probable number) method. Because this method provides definitive results in 24 hours, rather than 48-96 hours with the standard multiple-tube fermentation MPN method, it is more valuable than the standard method as an "early-warning" indicator of problems with reclaimed water disinfection. It is easy and fast to set up and costs less than a fifth of the standard method. Although it is not yet an EPA-approved method for reporting wastewater coliforms, it is approved for surface waters (it was the method used to check for bacteriological contamination after Hurricane Katrina) and it is under EPA consideration for routine wastewater testing. When the approval is given, the Scotts Valley Wastewater Laboratory will be able to demonstrate competence using the method, and can rapidly apply for certification that will result in significant time and cost-savings. In the interim, the method gives us an added level of assurance that the reclaimed water produced in Scotts Valley is of the highest quality possible.

Unfortunately, no year is perfect, and the performance of the SCADA system was a disappointment late in the year. The SCADA system and hardware was six years old, and it is relied upon for everything from reclaimed water data generation and reporting, to real time plant equipment monitoring, to emergency call-outs; so the decision was made to upgrade the system to the latest hardware and software under "controlled" conditions, rather than wait for the system to crash, and perform the upgrade under pressure of an emergency. While good in theory, the upgrade in practice has been anything but smooth, and several annoying glitches involving lost and inaccessible data remain. In the grand scheme of things--which includes the ability of the system to detect a serious problem at the plant or at a remote lift station and to notify an operator during or after hours--these problems are small and do not affect the reliability of the system to protect public health.

2005 was a great year for the reclaimed water "chronic toxicity bioassay" tank in the operations lab. By switching from the care and feeding of problematic goldfish and large apple snails, to more interesting tropical fish and smaller red rams head snails, it was possible to introduce live plants into the tank without having them eaten. The consequence of having live plants in the tank is that they remove nitrogen compounds like nitrate and buffer the water with their respiration, which makes for a more stable

aquatic environment. As of Dec. 31, 2005 there were 21 fish of 8 different species thriving in the tank.

Lift Stations

The City of Scotts Valley owns and operates seven lift stations at various locations throughout the City. All stations are inspected three times each week. During these routine inspections, hour readings are taken to verify normal running times and flow throughput, each pump is individually started and stopped to ensure proper operation, and wet-wells are visually inspected to confirm water levels with digital level reading on automatic pump controllers. Once each week, stations equipped with permanent emergency generators are tested on emergency power to ensure proper operation. Five stations are equipped with permanent emergency stand-by power. At this time, no other stations require permanent on-site emergency power, as limited flows allow ample time for City staff to respond to alarm conditions and provide portable generator power prior to overflows occurring.

All of the City's seven stations have back-up pumps and alarm systems that automatically call 24-hour emergency personnel in case of a power outage or high-level conditions.

Collection System

The City's sanitary sewer collection system is made up of approximately 40 miles of pipeline. City crews spend an average of one to two days each week performing preventative maintenance, using a combination vacuum/hydro-jet truck to clean the lines.

City staff responded to one collection system overflow in 2005. The overflow was estimated at 150 gallons. Plant staff responded promptly, correcting the problem and taking the necessary cleanup measures. The City reported the overflow to the Regional Water Control Board, State OES, and County Environmental Health. The City reported a second sewage spill, however it was not from the collection system. A pressure line carrying secondary treated wastewater broke at the treatment plant, spilling approximately 1,000 gallons of treated/disinfected wastewater.

Source Control Program

Industrial:

AVIZA Technology Inc. completed the installation of a new sewer lateral by May 16, 2005, meeting the compliance deadline of May 31, 2005, for this corrective action. All of AVIZA's discharge permit requirements were met during the 2005 year. AVIZA was warned about three low pH excursions that were self-reported during 2005, but caused

no harm to the City's treatment plant. AVIZA is in the process of reconfiguring one of their lab sinks in order to avoid any future excursions.

All categorical industries in the City were monitored and permitted through the pretreatment program in 2005. There were no violations in the discharges reported or observed from the significant industrial users discharging to the City sanitary sewer.

Grease Trap Installation and Maintenance:

The fats, oils, and greases (FOG) program is in place with most facilities operating in compliance with local ordinances. Source Control continues to routinely inspect and monitor the conditions of the grease interceptors operating in Scotts Valley.

Maintenance and Repairs

Plant Projects:

- New air compressors were installed on the plant's potable water system.
- Purchased new 15 hp submersible pump for influent pump station as back-up unit for equipment inventory.
- Installed new check valves on secondary clarifier's solids transfer system.
- Rebuilt the agitator system on the influent pump station's screenings washer/compactor.
- Replaced a portion of the aeration system piping due to corrosion.
- Made repairs to the rubber membrane on the aeration system panels.
- Purchased one new waste pump and rebuilt another for back-up and equipment inventory.
- Purchased new computer and software to run the plant's SCADA and emergency call-out system.

Lift Stations & Collection System:

- Began design on the Carbonero Lift Station Improvement Project. This project is scheduled to go to bid in spring of 2006.
- Eliminated the City's El Pueblo Lift Station by installing a new section of gravity sewer line.
- Performed annual root removal and control program for collection system piping.
- Installed new submersible pump at the Carbonero Lift Station.
- Installed new telemetry information and alarm system for all lift stations.

O & M Manual

The plant's main operations and maintenance manual (O&M) was not changed during 2005, however, the plant's O&M manual library was updated to include new equipment that was placed into service over the past year. Updating the plant's O&M manual takes place on an ongoing basis. We have one O&M manual that is used for

operational guidelines and minor service to plant equipment. We also catalog individual O&M's for every piece of equipment in place at the treatment plant, collection system, and lift stations.

Training

- All staff was retrained in the plant's annual Red Cross Adult CPR certification program.
- All staff participates in the plant's in-house safety/training meetings that are conducted every other Wednesday throughout the year.
- Two operators attended two separate two day certification examination preparation classes in Sacramento.
- Two operators attended a video equipment and inspection training class in Union City.
- Two operators attended a one day CWEA sponsored class "Sanitary Sewer Overflow Reporting" in the City of Antioch.

Public Outreach/Education

On an annual basis, the treatment plant staff provides a number of ongoing public outreach/education services. Some of those services include:

- **Oil Recycling:** As a member of the County's regional oil recycling program, the City distributes oil recycling containers to local automotive supply stores where they are distributed to residents at no cost. The 2.5 gallon used oil containers have labels containing information on proper disposal practices and can be used throughout the county in any curbside collection program as part of the integrated regional program.
- **Christmas Tree Recycling:** Every year following the Thanksgiving Holiday on their three-times-weekly lift station rounds, operations staff delivers bundles of informational flyers to local Christmas tree vendors for distribution to residents and businesses. Flyers contain information on free tree collection and drop-off locations so that trees can be chipped and reused.
- As always, plant tours are encouraged and given upon request to any person or group wishing to learn about the treatment process. Several individual and group tours were given in 2005.