



Case Study: Planet IRM Cuts Waste at Orange County Sanitation District

California's Orange County is home to some of the nation's best-known tourist attractions. Disneyland has hosted more than 500 million visitors since it opened in 1955, surfers flock to miles of pristine beaches by the thousands in search of perfect waves, and nearly 3 million baseball fans come out each year to watch the Los Angeles Angels of Anaheim try to reclaim their 2002 World Series crown.

The county featured in the Fox-TV teen show "The O.C." also lays claim to another type of landmark - one of the most advanced, productive and technology-savvy waste treatment operations around.

The Orange County Sanitation District operates the third largest wastewater agency west of the Mississippi River. In a continuous process, the agency collects, treats, disposes, and reclaims wastewater generated by 2.5 million people and businesses in the central and northern section of the county. It operates two treatment plants - one in Fountain Valley, and the other in Huntington Beach.

OCSD facilities process about 250 million gallons of wastewater each day - enough to fill the Angels' stadium three times over. The facilities operate 24 hours per day, each powered by a pair of computer servers and advanced levels of process control equipment.

"Most people really have no idea how advanced all of these processes are," said John Stephens, an information technology analyst at the OCSD. "They just flush their toilets and think it all just goes away. We have a lot of technology in here."

While more than 600 employees work for the district, the waste screening and treatment process is driven by computers. Operators adjust the computers to run the processes, periodically changing temperatures and regulating flows. But, for the most part, the plants operate on an automated basis.

Each of the plants has two control rooms, roughly 30 by

40 feet, with two VAX servers and a half dozen monitors. The servers monitor the treatment equipment in the plant. Each plant has about 10 stations where operators can make adjustments as needed.

Computers regulate the flow that enters the plant. First, it gets metered so the district can bill customers. From there, the flow passes through bar screens that rake out

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OCSD Information Technology Analyst

everything over an inch in size - everything from baseballs to lumber to tires to wheelbarrows. The screened-out waste gets dropped into a biohazard chamber for disposal.

The rest of the flow is pumped up 40 feet and starts its journey downhill through a series of additional processes. First, it goes through a grit chamber, settling out materials like coffee grounds and egg shells. These waste materials are collected and added to the biohazard bin. Then it goes through a primary clarifier, where coagulants help push grease to the top and heavier materials to the bottom. Both are collected and treated in anaerobic digesters, where methane gas gets extracted and serves a second function: running the central co-generation plant.

The remaining water is put through a secondary treatment process applying bug-eating bacteria, then chlorine and a dechlorinating agent. This treated and disinfected wastewater gets pumped to the ocean through an outfall pipe five miles from shore, and more than 20 truckloads of biosolids are dispersed on non-



food crop farmland each day.

Fiberoptics provide the communications backbone of the OCS D plants. They control the telephone system, the fire monitoring system and public address functions as well as all of the waste treatment processes. A four-mile cable connects the two plants, and more than 300 tube cables – each carrying between six and 18 strands of fiber – deliver services throughout the plants.

The district system's high level of automation necessitated a better system of managing information relating to their critical infrastructure to accommodate the ongoing upgrades and ensure that the plants continue to deliver a high level of service. Until recently, OCS D facilities staff still relied on spreadsheets and CAD drawings to track all the fiberoptics and wired connections that served the plants. Many of the documents included incorrect information; others couldn't be accessed or were hard to follow.

The OCS D turned to Planet® IRM, a centralized infrastructure data management system provided by Planet Associates, Inc. The organization used Planet IRM to consolidate all existing information about the plants' infrastructure technology into a new database that can be accessed and updated systematically as new facets of an ongoing capital improvement plan take hold.

Essentially, the move to Planet IRM instituted a new set of processes that didn't exist before, according to Stephens.

"We really didn't have a system," Stephens said. "We had multiple spread sheets and CAD drawings that tracked different things and overlapped with each other. Whenever you made a change on one, changes weren't necessarily made on another. There were errors throughout, and a lot of the documents were outdated. We knew problems were going to crop up, so it made sense to start with a whole new system."

Prior to implementing Planet IRM, the OCS D had drawings of all the pathways, but they weren't clearly marked. The new system identifies each pathway through the tube cables, from switch box to switch

box, denoting which process each fiber governs.

One of the biggest improvements Planet IRM has brought is capacity planning, Stephens said.

"As we're adding new processes, we can run quick checks on how lines will connect to the control center," Stephens said. "Do I have pathways to take new fiber from construction zone to control center? Before, we'd have to physically check our installed fibers for spare capacity. Now you can tell just by looking at the program."

The OCS D's information technology analyst said in the past he wasted hours each month walking or driving to inspect fiber lines to determine if there was unused "dark fiber" to accommodate new connections. Now, he just logs on from his desk and can tell right away what's available and what's not.

The district is conducting an 18-year, \$2.5 billion capital improvement program that will update and rehabilitate much of the two plants and outlying facilities. The plan includes an immediate \$450 million initiative to build a new headworks to screen out solids and a \$150 million secondary treatment project that will treat effluent being pumped into the Pacific Ocean.

Stephens said the district is continually integrating new technologies into its processes to ensure systems operate with the highest degree of efficiency and meet environmental standards. As new technologies come on board, OCS D aims to leverage the Planet software's functionality in other ways to track service delivery performance and troubleshoot problems in the lines.

"We're trying to stay on the cutting edge," Stephens said. "Through the additions of Planet IRM and other programs, our documentation and general procedures have improved leaps and bounds. We look forward to utilizing all of our tools to the fullest extent and continuing those improvements in years to come."

About Planet Associates Inc.

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