

top performer: **PLANT**

Gary Hengst, chief plant operator at the Lincoln Wastewater Treatment and Reclamation Facility, makes sure everything runs smoothly. (Photography by Lezlie Sterling)

The Right *Frame of Mind*

AN OPTIMISTIC, GET-IT-DONE ATTITUDE AND STATE-OF-THE-ART TECHNOLOGY
MAKE A WINNING COMBINATION FOR A CALIFORNIA RECLAMATION FACILITY

By Mike Grennier

IT MIGHT RANK AS ONE OF THE MOST ADVANCED facilities of its kind, but the Lincoln (Calif.) Wastewater Treatment and Reclamation Facility owes a great deal of its success to a team of operators with an optimistic, roll-up-your-sleeves, get-it-done attitude.

"You can have the best-designed facility in the world, but it doesn't mean much unless you have a competent, motivated staff who care about it and do what it takes to ensure it runs the way it should," says Gary Hengst, chief plant operator. "If you ask me what makes our plant unique, I'd say our staff is pretty incredible."

And it shows. The 4.2 mgd (design) facility, which serves Lincoln and surroundings in western Placer County near Sacramento, earned the Wastewater Treatment Plant of the Year Award in 2007 from the California Water Environment Association (CWEA).

The League of California Cities also awarded the facility its prestigious Helen Putnam Award for Environmental Excellence in 2005. And that's just

the start of a long and growing list of awards (see sidebar).

The awards are gratifying, says Hengst, who works for ECO-LOGIC Engineering, which operates the plant for the city. Yet to Hengst, it's the effort behind the awards that matters most.

"People are proud to work here, and we want to see the operation succeed," he says. "The awards come because we're doing the work. We're not changing what we do just to win awards. We're doing the best job we can and the awards reflect that."

PROTECTING RESOURCES

For the City of Lincoln, the plant plays an important role in helping the area cope with steady development and protect the local aquatic environment. Lincoln is among the fastest growing cities in northern California. Its population doubled from 2000 to 2004 and is expected to increase from 38,000 today to 50,000 by 2010.

profile

Lincoln Wastewater Treatment and Reclamation Facility, Lincoln, Calif.

BUILT: 2004

TREATMENT LEVEL: Tertiary [water reclamation]

TREATMENT PROCESS: Activated sludge with maturation ponds and UV disinfection

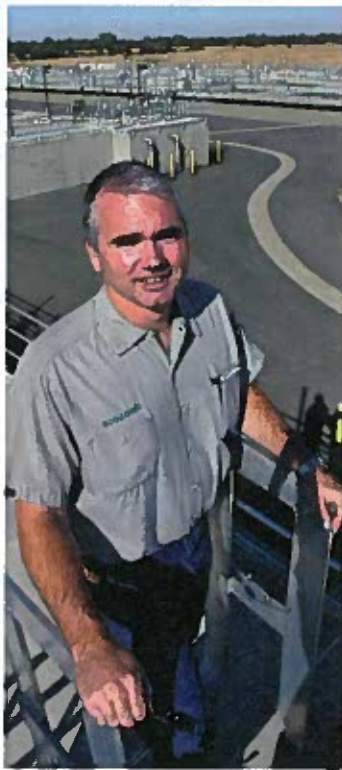
FLOWS: Design 4.2 mgd, peak 8.1 mgd

PERMIT LIMITS BOD/TSS: 10 mg/l monthly average, 15 mg/l weekly average, 20 mg/l daily maximum; turbidity: 2 NTU daily average, 5 NTU daily maximum; total coliform: 2.2 seven-day median; 240 daily maximum

RECEIVING WATER: Auburn Ravine Creek

PLANT MANAGER: Gary Hengst, chief plant operator

STAFF: Justin Gregory, supervisor; Trey Cain, Devon Morris and Mike Finnigan, senior operators; Joe Steer, operator; Bryce Morgan, lab analyst; David Morris, mechanic; Tina Kasabasich, part-time administrative/preventative maintenance specialist



Gary Hengst

Plans for the plant were laid in 1997 after the city's aerated pond treatment facility neared its capacity for discharging to land. The city worked with ECO-LOGIC, which had run the old facility for one year, to plan and design the new one.

The \$85 million plant, built through a public-private partnership between the city and private developers, went on line in 2004, and ECO-LOGIC won the operations contract. "We were initially hired to do the startup, and the city felt we would be the best ones to operate the plant," Hengst says.

The choice was the right one, as ECO-LOGIC has a record for consistently meeting the plant's effluent limits.

"We understand that the environment can suffer if you make mistakes," Hengst says. "And we know we're making a difference. Even though many don't realize it, the wastewater treatment industry actually helps extend the lives of people. It's something that isn't taken for granted in other parts of the world."

"A treatment plant is like a chain, and it needs to be strong. You just can't have any weak links. Anywhere. It's really a matter of making sure that everything is in line."

GARY HENGST

MOST MODERN

The Lincoln plant is considered one of the most modern and environmentally friendly wastewater treatment plants in its area. Its innovative technologies include maturation ponds and ultraviolet disinfection on the way to meeting federal and state discharge requirements, including the California Toxics Rule. It is designed to meet the highest California Department of Health Services Title 22 standards as an unrestricted non-potable reclaimed water source.

The plant's activated sludge process consists of anoxic basins and oxidation ditches. Secondary effluent from the clarifiers is pumped to the maturation ponds, which act as equalization basins.

The plant also uses dissolved air flotation (DAF) thickeners to treat effluent from the maturation ponds and, in some instances, from the tertiary storage basins. The primary purpose of the DAF treatment is to remove algae growth developed during storage. Effluent from the DAF units is pumped to a rapid mixer where a coagulant is added to allow remaining fine suspended particulates to agglomerate into flocs. The mixer effluent then flows to the tertiary filters, where the flocculated particles are removed as the water flows through granular media.

Final chlorinated effluent can be delivered to several discharge or reuse sites, which include Auburn Ravine Creek, designated agricultural or landscape irrigation sites, or temporary on-site storage. Waste solids are dewatered and hauled to off-site disposal.

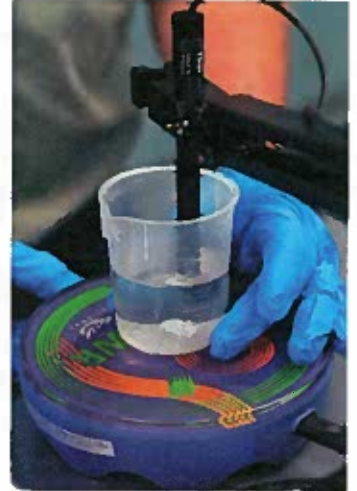
The high-quality effluent contributes to flows in the sensitive habitat of the receiving water, Auburn Ravine Creek, a critical habitat for salmon and steelhead migration. The plant also plays a key role in water reuse. Effluent is used for irrigating fodder crops and for dust control. It is permitted for irrigation of rice and strawberry fields, although to date it has not been used for those purposes.

"I think the plant design really complements our efforts," says Hengst. "It combines the best of the old technology with the new. When you couple the pond systems with the tertiary process and UV disinfection and all the other elements, it's much better than any of those processes by themselves."

EVERYONE PITCHES IN

Although plant design is key, Hengst places significant value on the staff's ability to work as a close-knit team. The plant employs nine people, including six treatment operators. The underlying management philosophy is as plain as day: Everyone pitches in. "We excel in helping each other," says Hengst. "We'll cross over to other areas and help where needed. No one here has an attitude that it's not my job to do maintenance, or it's not my job to do lab stuff. There are no lines drawn here and I can honestly say the attitude is very positive."

In Hengst's view, successful operation is often tied to intangibles, such as



A lab technician at the Lincoln plant performs an ammonia test.



Gary Hengst checks a UV disinfection channel at the Lincoln facility.



Trey Cain manually operates air valves on the tertiary filters at the Lincoln plant.

old-fashioned hard work and common sense. "There's no question that some of the work requires experience," he says. "But it's often, 'Let's get in there and get the job done.' It doesn't always require a grade level. If we have to change the oil in this pump, that's just something we have to do."

Or, the job might involve something even less glamorous. The former aerated pond facility now acts as an influent pumping station. At times, the pumps become clogged, and the crews need to remove solids that block the flow. All team members share the task, which they call "de-ragging the pumps."

"Taking the garbage out of the pumps is one of the nastiest things we do," Hengst says. "In some places, that's a Grade I operator's duty, but not here. We rotate that duty. I'll personally go pull weeds. There's no job where all of the sudden you get to a certain grade level and you don't have to de-rag the pumps anymore."

Of course, Hengst knows that jobs like de-ragging could make an operator feel less than enthusiastic about his career choice. But the need to tackle the grunt work is something he routinely addresses. "There is nothing more demotivating than doing a job you know just doesn't need to be done," he says. "But we don't perform any job that isn't important. I make sure everyone understands what they're doing has meaning."

EXPERIENCING IT ALL

While the plant's seven operators share the grunt work, they also share many other responsibilities. That's because a major goal at the Lincoln plant is for operators to develop a well-rounded career. From daily rounds to working in pairs to continuing education, operators experience it all. "That's what makes this job interesting," Hengst says. "There's so much you can learn. At this operation, you can contribute in a lot of areas and grow in a lot of different ways."

Qualified operators each get a turn at the wheel as operator of the day. Even lower-grade operators are responsible for plant checks. If and when an operator spots an issue that needs extra attention, he gets the right people involved. Hengst also makes it a point to have lower-grade operators and higher-grade operators work side by side whenever it makes sense.

"We'll put an experienced guy with an inexperienced guy for a lot of the preventive maintenance jobs," Hengst says. "This way, the less experienced person learns how to do it right. Of course, the job also gets done faster."

Lower-grade operators are also encouraged to pursue their interests at the plant. Hengst says everyone benefits when a particular operator demonstrates passion for a particular aspect of the operation. He points to Grade I operator Joe Steer's knack for operating the two 300-hp Westfalia centrifuges used for dewatering solids.

"That's something Joe just took a liking to, and he now knows that operation better than anyone," Hengst says. "That benefits the team because he really knows it and he can train people on it. But it's also important because he enjoys it. If you empower people to pursue their interests, it means you

have to sit back a little bit and let them take chances within bounds."

The plant's operators are certified by the California State Water Resource Control Board. Aside from on-the-job training, Hengst encourages his staff to follow through with continuing education. They regularly take part in CWEA training programs and events.

For Hengst, education and on-the-job training is about operators living up to their potential. "Bringing out the best in people is one of my top priorities," he says. Doing the best possible job is a common topic in daily meetings and training sessions.

"I don't want anyone going home at the end of the day and saying, 'I could've done this or that better,'" Hengst says. "I try to motivate them and say, 'We need to just get in there and give our best.'"

ATTITUDE IS EVERYTHING

With a knowledgeable and motivated staff, Hengst doesn't see any major challenges in running a relatively new and advanced facility. He sees the future success of the operation as largely a function of maintaining a positive atmosphere that inspires a job well done. And he knows just how to make it happen.

MUCH DECORATED

The City of Lincoln is recognized as a civic leader for its visionary wastewater treatment and reclamation facility. In addition to processing wastewater for discharge, the technologically advanced plant enhances the reliability of the region's water supply by recycling water. The result is less reliance on potable water for irrigation and other uses.

In just over five years, the plant has earned a number of honors for design, environmental excellence and safety.

Among the highest is the 2005 Helen Putnam Award for Environmental Excellence, recognizing outstanding achievements by California's 478 cities. Additional awards include:

California Water Environment Association (CWEA): Plant of the Year, 2007; Plant Safety Award, 2007.

CWEA Sacramento Area Section: Treatment Plant of the Year (<5 mgd), 2008.

CWEA local chapter awards: Plant of the Year (<5 mgd), 2006 and 2007; Plant Safety, 2005, 2006 and 2007; Special Achievement in Operations, 2005, Justin Gregory, treatment plant operator III; Engineering Achievement, 2003.

American Public Works Association local chapter award: Environmental Award, 2005.

"You've got to take care of your people," he says. Toward that end, ECO-LOGIC provides competitive wages and benefits. But taking care of employees goes beyond the basics. "It's not just about a paycheck," says Hengst. "It's about making sure they're valued and respected, and that they're doing things that are meaningful."

Another key is to promote from within and hire the right people for the job. That means matching an operator's education and training with the job description. "There's no question that certification and an education are important," Hengst says. "But it's not everything. We look for problem-solvers and people who can make good decisions."

It's also an approach that pays dividends. Recently, repairs were needed on a comminutor used to reduce the size of solids in the influent before they pass through fine screens. Rather than purchase a new prescreening device, the team found they could use existing parts from elsewhere in the plant to rebuild the unit. The strategy saved thousands for the city, since ECO-LOGIC's profit is dictated by services rendered rather than the total operating budget.

"When we fix equipment like the comminutor, which has been discontinued and would have cost around \$30,000 to replace, that money stays with the City of Lincoln," Hengst says. "Those are the kinds of things we take pride in."

STAYING ON TOP OF IT

The true motivation in operating the plant is to exceed customers' expectations. Hengst says the operators constantly look for ways to run the plant at peak performance — whether prioritizing and reprioritizing jobs, following through on comprehensive maintenance, or executing the right process control strategy.

"A treatment plant is like a chain, and it needs to be strong," Hengst says. "You just can't have any weak links. Anywhere. It's really a matter of making sure that everything is in line. If something doesn't look right, smell right or sound right, we address it immediately. You can't just relax and expect everything to go well. It's our job to stay on top of things."

With that attitude, the residents of the Lincoln area can relax, knowing the plant will keep pace with stringent effluent requirements, while helping to satisfy the growing need for recycled water. **tpa**

more info:

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Gary Hengst checks on a maturation pond.

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