

TREATMENT PLANT OPERATOR

tpo™

DEDICATED TO WASTEWATER & WATER TREATMENT PLANTS

tpomag.com  
APRIL 2018

IN MY WORDS:

**A toast to water reuse**

PAGE 26

**SUSTAINABLE OPERATIONS:  
Saving and producing energy  
in Southern California**

PAGE 28

Eric Klann  
Public Works Director and City Engineer  
Prineville, Ore.

# It's a *Natural*

**A WETLAND COMPLEX SAVES  
AN OREGON CITY \$55 MILLION**

PAGE 20

**TECHNOLOGY DEEP DIVE:  
Nitrogen removal  
with no waste stream**

PAGE 38



# Long, Long Life

A SIMPLE DESIGN COMBINED WITH EFFECTIVE MAINTENANCE AND ROTATIONAL OPERATION HELPS A GEORGIA TREATMENT PLANT GET LONG LIFE FROM ITS INFLUENT LIFT SCREW PUMPS

By Chris French

With almost 30 years and counting of uninterrupted service from 60- and 72-inch screw pumps, operators at the Calhoun (Georgia) Wastewater Treatment Plant have firmly underlined the benefits of basic preventive maintenance.

In 1988, Calhoun's treatment plant installed two 60-inch, 75 hp open screw pumps (7,000 gpm capacity) and two 72-inch, 50 hp screw pumps (10,500 gpm). Original concrete construction involved an empty space provided for a third pump for each capacity; that was filled in 2012 by a new 60-inch, 75 hp screw pump with a lift of 20.46 feet at a 38-degree incline (all pumps from Lakeside Equipment).

A year later, one of the original 60-inch pumps was finally replaced; the second original 60-inch pump was replaced in 2014. Even then, the replacements had more to do with budget and long-term planning requirements than with the pumps' condition, according to John Banks, wastewater plant manager. "The pumps were only beginning to wear out; they were certainly not on their last legs — far from it," he says. "The original pumps far exceeded their life expectancy."

## CHALLENGING DUTY

The plant (16 mgd design/5 mgd average) serves the city of Calhoun, an hour north of Atlanta and home to some of the world's top floor covering manufacturers. The plant is a tough, corrosive environment for the original open screw pumps, which run rotationally around the clock via three configurations to equalize wear.

Consisting of a spiral screw, upper and lower bearings, and a drive arrangement, the open screw design uses a torque tube with spiral flights set in an open, inclined concrete trough. The basic screw pump design has been used for millennia to promote simplicity and reliability.

Banks observes, "The beauty of these screw pumps is that there is actually very little maintenance. Once per week we check oil levels, and our operators also monitor the grease levels on the bottom bearing. It's all very simple, and with the stainless steel tubing, we don't have to worry about corrosion. These routine checks have seen our screw pumps work very reliably for more than 25 years. That shows what a good investment they are."

The Calhoun treatment plant benefits from long-lasting open screw pumps (Lakeside Equipment).



“Our program of rotating the use of the screw pumps, combined with basic oil checks and free-flowing grease, has given us a winning hand of flexibility and very long-lasting equipment.”

**JOHN BANKS**

## REDUNDANT DESIGN

Normally, two screw pumps lift raw sewage up from the collections system into the plant. Prescreening is not required because large objects pass between the screw flights and through the pumps. Additional screw pumps are ready in case the sewer system becomes surcharged in a large rain event. After lifting, the wastewater is taken through screening and grit removal processes before being lifted again by a second set of screw pumps.

“Our program of rotating the use of the screw pumps, combined with basic oil checks and free-flowing grease, has given us a winning hand of flexibility and very long-lasting equipment,” Banks says. “The preventive maintenance program also means that we don't have the pressure of having to get



Each pump uses a V-belt drive that protects against possible shock loads.

a screw pump back into service quickly if and when we are looking for additional pumping capacity.”

The older portion of the Calhoun sewer system covers more than 136 miles of interceptor and trunk lines. It was upgraded in 2004 to meet new standards. Then, as now, the screw pump purchase was put out to bid, with an eye toward securing the best long-term performance and value.

Lakeside Equipment offers both greased and sealed lower bearings on its open screw pumps. The dual upper bearing of each style of pump includes both radial and thrust components, serving both forces that act upon it, helping to prolong service life. The pump design also benefits from a V-belt drive that connects the

motor to the speed reducer. This acts as protection against possible shock loads and enables easy speed changes in the field. The constant-speed drives eliminate the need for complex, variable-speed electrical controls.

“We’ve taken care of our screw pump installations, but Lakeside is always there to help with startup and service if required,” Banks says. “They’re a company that very much stands by its equipment and, like us, thinks about the long term. We’ve also had good support from Lakeside’s representative Templeton & Associates in Suwanee.

“We see good grease coming out during our checks, which means we have good grease in there for these very robust screw pumps. This plays a big part in the continuing smooth operation of our plant.” **tpo**

## Share Your Ideas

*TPO* welcomes news about interesting methods or uses of technology at your facility for future articles in the How We Do It column.

Send your ideas to editor@tpomag.com or call 877-953-3301





All trademarks owned by Lakeside Equipment Corporation. © 2018 Lakeside Equipment Corporation.

## LOOKING FOR A SCREW PUMP UPGRADE? LAKESIDE REPLACES ALL BRANDS AND TYPES

**Lakeside's screw pumps offer the ideal and cost-effective "drop in" replacements for less reliable designs.** Improve pumping performance and reduce maintenance costs with our superior dual upper bearing design and heavy-duty self-aligning lower bearing designs. For decades we've been the go-to source for replacing all screw pump brands. Replacements typically require little or no structural modifications. It's what you expect from Lakeside Equipment—known for nearly a century for efficient and dependable operation in all wastewater, drainage and industrial applications.

For more information on how you can achieve Lakeside quality and performance, contact one of our experts at 630.837.5640, email us at [sales@lakeside-equipment.com](mailto:sales@lakeside-equipment.com) or visit our website [www.lakeside-equipment.com](http://www.lakeside-equipment.com)



Cleaner Water for a Brighter Future®



### Screw Pumps

Open Screw Pumps  
Enclosed Screw Pumps