



Illinois

Look inside for more
Illinois Telecommunications

PRSR STD
U.S. POSTAGE PAID
ALTON, IL
PERMIT NO. 730

Business Journal

We Mean Business. Illinois Business.

Check us out on the Web!
www.ibjonline.com

Vol.3, No. 3, 24 pages info@ibjonline.com December 2002 (618)465-5572 \$1.50

Firm finishes changes to state's largest waste treatment lagoon

By KERRY L. SMITH

Columbia is now operating one of the largest, most innovative wastewater lagoon treatment facilities of its kind in Illinois.

Engineering, architectural and planning firm Horner & Shifrin Inc.'s latest project for Columbia is not the first partnership between the company and the city. The two entities have worked together since 1993. But when it comes to finding an environmental, cost-effective solution to wastewater treatment, Horner & Shifrin environmental department manager Leo Ebel said this project just made sense.

"To put it simply, it's a condensed version of what occurs in nature, in streams and lakes," Ebel said. "Essentially, it's a biological treatment system that benefits from waste-eating organisms already present within the lagoon itself."

The new aeration system duplicates the natural oxygen transfer that occurs in a flowing stream, except that air is introduced from numerous lines of tubing laid in a parallel pattern across the bottom of the lagoon. Fine bubbles emitted from each aeration tube create a curtain of gently rising air that acts as a hydraulic barrier to hold wastewater behind it, Ebel said.

Dissolved oxygen in the wastewater aerobically reduces organic matter and suspended solids to carbon dioxide and water; other bacteria then digests these settled solids and microorganisms.

The result, he said, is the almost complete digestion of the sludge, much of it

into useful protein. The new aeration system inherently provides primary settling, biological oxidation, final settling and odor control - all in one treatment operation.

Horner & Shifrin project manager Dennis Campbell, who has been involved with the design and planning of lagoon-based wastewater treatment systems for more than 30 years, said lagoons are often used in wastewater treatment facilities for rural communities, those which enjoy a greater availability of land than urban areas.

"The Illinois Environmental Protection Agency and other regulatory bodies are being more careful as to what (lagoon-based treatment) systems they approve out of concern for possible wastewater leakage and contamination of nearby groundwater," Campbell said. "But the well-run lagoons, such as the city of Columbia's, are perfect examples of simple, low-cost methods for treating wastewater."

Campbell said that in light of stricter IEPA regulatory standards in the coming years, Horner & Shifrin designed Columbia's system with flexibility to keep pace with future environmental restrictions.

"This solution for the city of Columbia was an obvious one," Ebel said. "In terms of both lower capital investment and operating costs, since the city already had a lagoon, creating this lagoon-based treatment system made much greater economical sense than the alternative, which would have been to replace or supplement Columbia's system with a mechanical plant."

Municipalities such as Columbia, Ebel said, are also conscious of needing extra wastewater treatment capacity to handle a growing number of Illinois industries that have started to shift from discharging waste privately to asking cities to process and treat their wastewater for them.

"This is a great tool for cities to use in attracting new business and industry," he said. "If a city such as Columbia can say, 'We've got the infrastructure to handle it for you,' that's just one more incentive for an industry to locate there."

Morris Linnemann, wastewater superintendent for the city of Columbia, agreed.

"With this new upgrade, we anticipate being able to meet the needs of a population at least double that of Columbia today," Linnemann said. "And after the first year of operation, we expect to cut our energy costs in half. That's exciting for the city, its residents and its business and industry."

Because Columbia's wastewater treatment process is one of the biggest in the entire state, Campbell said other municipi-



A southwest view of the treatment plant's cell numbers two and three, with control building in the background. Columbia's water treatment facility is one of the largest of its kind across the state of Illinois.

Photo courtesy of Horner & Shifrin Inc.

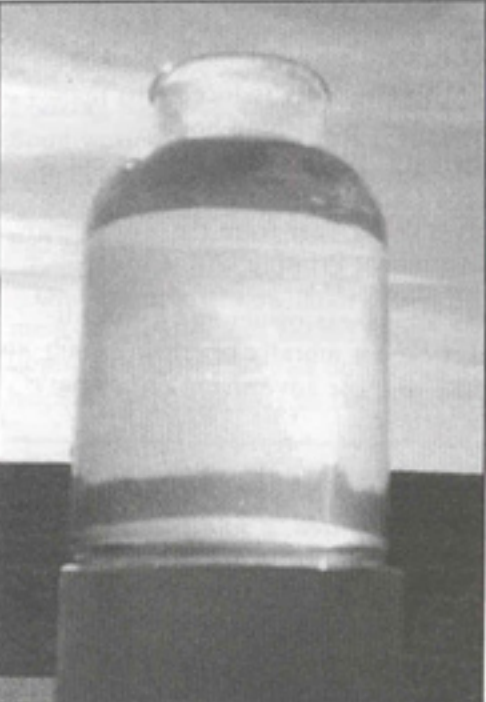
palities are looking to its system as a model to emulate.

"It's the only three-cell treatment facility in the state that uses an integrated process of complete aeration, AquaMats and native fish species to treat wastewater," he said.

To further polish the effluent, Horner & Shifrin had the city add 450 pounds of fathead minnows and 3,000 blue gills to the final lagoon cell.

"These fish feed on snails, bloodworms, beetles, crawfish and other aquatic life prevalent in a totally aerated and healthy atmosphere," Campbell said. "Every pound of fish growth rate is equivalent to a pound of waste removed."

The Columbia wastewater lagoon improvements were completed in May of this year. During the entire construction period, Columbia's existing treatment facility continued operating.



Above is a sample of effluent water from the city of Columbia's lagoon wastewater treatment facility. The project improvements, completed in May by Horner & Shifrin Inc., give Columbia the ability to serve twice as many users as before.

Photo courtesy of Horner & Shifrin Inc.

THE LARGEST

Commercial Real Estate Agency in Southern Illinois

The Greatest Number of Satisfied Clients and Largest Commercial Inventory in Southern Illinois



Kenneth Johnson Agency Inc.

#9 Park Place
Swansea, Illinois 62226
(618)277-0505

For More Information, Please Visit Our WEB Site
www.kja-commercial.com