

Public Works

[®] City, County and State

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George Rowe, President-Elect of the American Public Works Association, is pictured in front of the Cincinnati, Ohio City Hall, where he served as Director of Public Works until his recent retirement. More on page 22.

Small Community Solves Big Wastewater Problem

CARROL BOURGEOIS

Mayor,

Addis, Louisiana

EFFLUENT discharge requirements are very stringent and leave a utility little room for maneuvering. What is a small town to do when large, expensive treatment facilities seem to be the only answer? Our solution was to investigate numerous options until we found a system that would meet the required treatment limits and was affordable.

The town of Addis is similar to many small communities in the U.S. especially when it comes to its wastewater system. For years, each home within the community had its own treatment unit. Surcharges and inefficient systems caused partially treated sewage to be discharged into local drainage ditches. In addition, a private developer built a subdivision that included a carbon-



■ AERIAL view of the intra-channel clarifier treatment plant in Addis, Louisiana.

steel, "package treatment plant." As can happen with plants of this type, hydraulic surges caused by-passes and overflows of untreated waste into one of the town's principal drainage canals. Thus, the town was experiencing severe environmental and health problems that required immediate attention.

Unfortunately, the town did not have sufficient funds to construct the necessary facilities. In 1979, the town's original consulting engineer proposed building a three-cell oxidation pond that would discharge into a local bayou. It was also proposed to build a conventional collection and transmission system. The equivalent 1993 cost to construct this three-celled, aerated oxidation pond would have been over \$1,000,000. Furthermore, this type of treatment plant would not meet new, stringent effluent requirements that were mandated by regulatory and governmental requirements. It was also noted that although this system is classified as "non-mechanical," it requires using numerous floating, mechanical aerators. Operating and maintaining these aerators would have been expensive and time consuming. Another short-coming of this system was its inability to handle high-strength wastes. Thus, any heavy commercial businesses or

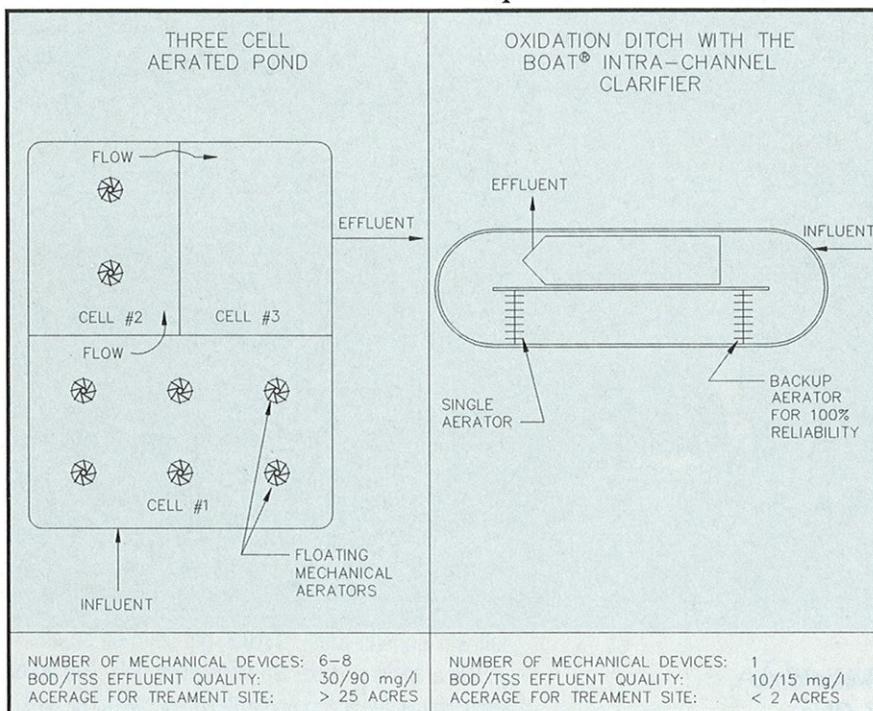


Figure 1.

SUMMARY OF RESULTS			
YEAR	INFLUENT BOD ₅ (mg/l)	EFFLUENT BOD ₅ (mg/l)	EFFLUENT TSS (mg/l)
1991	263	12	7
1992	213	8	6
1993	226	5	4
AVG.	234	8.3	5.7

Figure 2

industries could not discharge into the town's wastewater system. This would severely limited the growth potential of the community.

Finding a Cost-Effective Solution

The town sought more engineering advice and worked with a consulting engineering firm experienced in finding innovative solutions to environmental problems. This firm was participating in a research program partially funded by the EPA. This engineer's solution involved using a single aerator and a non-mechanical separator. The BOAT[®] intra-channel clarifier. This clarifier, and the associated aeration tank, could also handle high peak flows, as well as high strength wastes from commercial and industrial customers.

Figure 1 illustrates the difference between this system and the conventional, aerated pond that was originally proposed. Based on the differences and Addis' particular requirements, the choice was easily made to select the new system. Thus, the town implemented an innovative program that resulted in our town constructing this unique treatment plant. As an extra bonus, the federal government allowed the town to receive additional

monies for the innovative technology, which meant that monthly user fees could be reduced. The engineering firm also designed a small-diameter pressure sewer for collection and transmission, which also reduced the overall construction costs.

Competitive bids were received from several contractors, with the lowest responsible bidder submitting a price of \$987,700 for the entire treatment plant, plus an effluent pump station and a force main to the Mississippi River. The entire treatment facility and discharge system was constructed in about nine months. The discharge from this treatment plant has always met the permit requirements. In fact, the high-quality effluent consistently produced by this system is three times better than the state's discharge requirements. From 1991 to 1993 the average influent BOD₅ has been 234 mg/L while the effluent BOD₅ has measured 8.3 mg/L and the effluent TSS recorded at 5.7 mg/L.

Meeting Expectations And Then Some

The ability of the new system to handle higher strength wastes

was recently proven. The town was able to collect wastes from a local railroad yard that were easily and economically treated in the wastewater treatment facility. This facility has exceeded all of the town's expectations. The successful installation and operation of our plant has prompted visits from dignitaries and engineers from around the world. Officials from Canada and overseas have inquired about and examined this U.S.-developed technology.

Although this system was relatively new when it was selected by Addis, it now has a proven track record. There are over 100 such intra-channel clarifiers successfully operating in the U.S. These units are designed and marketed by United Industries in Baton Rouge, Louisiana.

Addis now has the capability of growing and developing in an orderly fashion, without worrying about restrictions because of an inadequate sewer system. Properly implementing new and innovative technologies can allow small communities to provide for the needs of their residents by improving the local environment and keeping costs to an affordable and reasonable level.



Mayor Carroll Bourgeois of Addis inspects the municipal treatment plant with visiting Mayors from Ontario, Canada.

Trying to extend the life of a treatment plant? You need a ...

Life BoatTM

intra-channel clarifier

BOAT[®] intra-channel clarifiers can be installed in existing oxidation ditches . . .

The complete system can be in operation within 7 weeks from the date of equipment order!

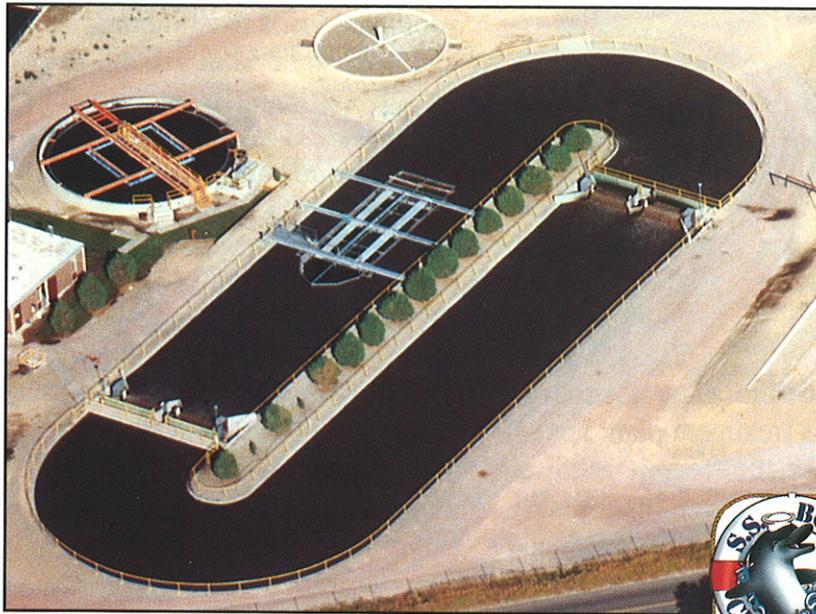


Figure A This existing clarifier at this treatment plant was hydraulically overloaded and could not handle the peak flows. The city desired to expand the overall capacity without increasing the O&M and energy costs. The **BOAT[®]** intra-channel clarifier was directly purchased by the city and installed into the existing aeration basin, with minimal down-time. No modifications were required to the existing aeration equipment.



Figure B When existing treatment plants, such as trickling filters or activated sludge systems, can no longer meet the new discharge permits, the **BOAT[®]** intra-channel clarifier system can be built alongside while the existing plant is still in operation. This reduces the construction costs, especially when the old facilities are still allowed to treat a reduced amount of flow and the effluent is blended prior to discharge.

- Retro-fitted into existing basins
- Reduced construction costs
- Lower energy requirements
- Up to 100% increase in plant capacity
- Minimal plant "downtime"



Figure C Existing lagoon and pond systems cannot meet the more stringent requirements of modern discharge permits. These antiquated systems can be easily upgraded by using the **BOAT[®]** intra-channel clarifier system. Oxidation ditches with this non-mechanical clarifier can be constructed alongside of the ponds, thereby reducing land and energy costs. The existing ponds can be utilized for sludge holding or flow equalization, if so desired.

For further information, contact

UNITED INDUSTRIES, INC.

P.O. BOX 3838, BATON ROUGE, LA 70821

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