

# Doing More with Less

## Okaloosa County (Fla.) Saves Money on New Treatment Plant with Alternative Contracting Strategies

By Jeff Littrell

**H**ow does a utility move an existing 6.5 million gallon per day (mgd) wastewater treatment facility with buy-in from ratepayers and County Commission? A new treatment facility wasn't necessarily needed, but the community demanded that it be relocated due the unpleasant odors constantly emanating from the Garniers Wastewater Treatment Facility (WWTF) in Fort Walton Beach, Fla.

The Garniers WWTF was constructed in the early 1980s and is typically characterized as emitting very high concentrations of hydrogen sulfide and mercaptans. To make matters worse, it is located adjacent to an elementary school and in the midst of a congested residential community. The existing facility does not have adequate odor control systems to treat the odors and the surrounding community simply wants the plant gone.

Responding to the requests of the community, the Okaloosa County Water and Sewer system (OCWS), with the support of the Board of County Commissioners, initiated the Arbennie Pritchett Water Reclamation Facility Project (WRF). This project will decommission and demolish the Garniers WWTF and construct a new 10 million gallon a day (mgd), state-of-the-art water reclamation facility at a remote site.

### Project Challenges

At the onset of the project, three major issues were identified that had to be overcome to ensure its success:

1. Where would the new facility be located?
2. How could it be implemented without the benefit of impact or tap fees from existing customers, who represent about 60 percent of the current capacity of the Garniers Facility?
3. How can this be accomplished in a timely manner?

The answer to the first issue was to look to properties owned by Eglin Air Force Base (AFB), the dominant landowner in the region. In fact, there is simply no other land available to locate a new 10 mgd wastewater treatment facility. Furthermore, since it is nearly impossible to permit a direct surface water discharge in the State of Florida, additional properties were required to locate a new effluent disposal system. In all, the project required more than 220 acres for the new WRF and the rapid infiltration basin (RIB) effluent disposal system. So, the County decided to locate the new Arbennie Pritchett WRF on property owned by Eglin AFB at the site of the County's existing 650-acre Garniers WWTF effluent sprayfield disposal site. Groundbreaking for the Arbennie Pritchett WRF took place in April 2007 after an eight-year period that included: negotiations with the U.S. Air Force for leasing 255 acres of the existing 650-acre site for the new WRF and effluent disposal system, environmental assessments, environmental baseline surveys and property appraisals required by the federal government for the out-lease of Air Force property. The Air Force is

leasing the 255-acre site to the County for a tidy sum of \$325,000 per year with a 2 percent annual escalator.

The solution to the second and third problems, how to execute the project in an economically feasible manner, given that the land acquisition costs for the project are substantial and how to get this done as soon as possible, are equally as challenging. Further consider that this project requires that the raw wastewater be diverted from the Garniers Plant to the new Arbennie Plant, approximately 4 miles to the north and 60 feet higher in elevation. To address these key issues — cost and time — the County decided to use three project delivery methods, including the design-build method, the traditional design-bid-build method and the method of self-performing the work.

### Contracting Approaches

The County elected to implement the design and construction of the new 10 mgd WRF using the design-build process. This enabled the County to avoid the classic adversarial relationships that can be created between the owner, engineer and contractor that are typical of the traditional design-bid-build process. Instead, the County, in conjunction with the County's Program Manager and Design Criteria Professional, developed a "design criteria" package on which the contractors based their proposals and budgets. This allowed the contractors to participate in the design process during the design-builder selection phase, thus leveraging the experience of the contractor to refine the final design. This process also allowed the County and the Program Manager to be intimately involved in developing the contractor's budget for the project. There have been no surprises and none are expected. This process also allowed construction to commence prior to 100 percent completion of the final design. Constantine Engineering of Fort Walton Beach, Fla., is serving as the Program Manager; HDR of Orlando is the Design Criteria Professional, and CDM of Maitland, Fla., is the design-builder for the project. Maximizing the benefits of these relationships, the County has expedited the project and managed the costs of the project.

This effort for construction of the water reclamation facility accounts for about two-thirds of the project investment. The effluent disposal phase of the project involves the conversion of a portion of the existing 650-acre sprayfield into a 200-acre rapid infiltration basin system and was implemented using County forces to self-perform the construction. The RIBs project was designed by Polyengineering of Dothan, Ala., and is not part of the design-build for the WRF. The County's options were to bid this as a separate project, add it to the design-builder's contract, or construct the RIBs using County forces. The first two alternatives would result in higher costs, tipping the balance of the overall project costs unfavorably.

Fortunately, Okaloosa County Water and Sewer has an experienced and capable staff that comprises its maintenance and con-



Okaloosa County officials decided to use three project delivery methods for the construction of a new sewage treatment plant — design-build, design-bid-build and self-performing the work.

struction crews. As evidenced by the current undertaking, there is no job too big for the in-house crews to tackle. They stepped up to the challenge and committed to delivering the 10 mgd, \$10 million rapid infiltration basin system to the ratepayers on time and with significant project savings.

Through a detailed, careful planning process, the County decided it was in its best interests to deliver the construction phase of the RIBs component of the project utilizing its forces and equipment. The County recognized that while there was inherent risk in self-performing a project of this magnitude, complexity and coordination with other contractors, payoff for the County could be tremendous. It is estimated that by using County forces, the savings on the project costs could be as high as \$4 million.

### Project to Date

So far the project is right on track and significantly under budget. To date, the County has cleared and grubbed 200-acres of existing sprayfield for the RIBs; excavated and placed more than 456,000 cubic yards of material constructing the RIBs; procured and installed more than 36,000 linear feet of 8- to 30-inch diameter ductile iron reclaimed water lines and 1,250 feet of 48-inch diameter storm drain pipe; and has completed the construction of all 18 of the RIBs. Each RIB is approximately 7 acres in size and will be used to distribute the reclaimed water over the 200 acre site. The RIBs construction began in early August 2007 and was approximately 90 percent complete as of mid-February and right on schedule. All this has been accomplished while maintaining operation of the existing sprayfield to dispose of more than 5 mgd of treated effluent from the Garniers WWTF.

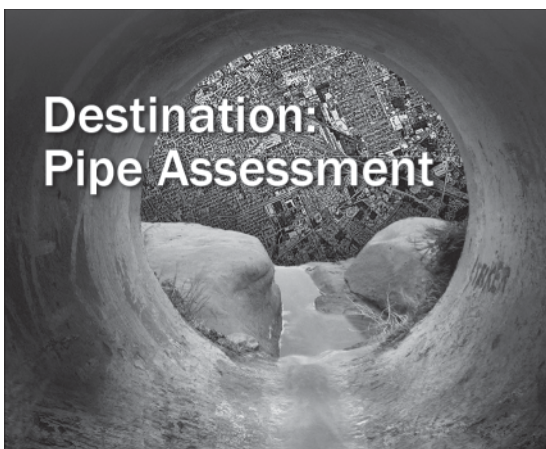
During this process OCWS relied on the use of heavy duty earth moving equipment that was rented specifically for this project, and which the County staff had little practical experience operating. With the clock ticking on the rental equipment, time was of the essence. OCWS used state-of-the-art GPS equipment that was installed on and integrated into the operation of

the excavation equipment to assist them with the site excavation and grading operations. An RTK GPS total station was used in conjunction with GPS receivers mounted onto the grading equipment. This cut down the amount of time by eliminating the need to set and reset grade stakes. Grades were set electronically, which allowed for uninterrupted operation of the equipment.

The ratepayers of Okaloosa County Water and Sewer should be gratified knowing that the County has stepped up to the plate and has performed above and beyond the call of duty. State law requires that projects of this type and magnitude be competitively bid. However, the law also allows for municipalities to evaluate the advantages of self-performing the work, hold a public hearing to discuss the issue, and then vote as to whether to self-perform or bid the project. Okaloosa County followed this process and decided to self-perform the work. A private contractor would be charging the County for overhead, significant mark-ups on materials and equipment, plus profit. Self-performing this work and taking on the potential liabilities associated such a large and complex project speaks volumes about the commitment of the OCWS staff to provide a quality and economical service, the expectation being to keep rates as low as possible to mitigate the financial impact of this project.

To put this in perspective, the total project budget for constructing the new wastewater treatment facility, the RIBs and the re-pump station, and decommissioning of the existing plant is \$65 million, or roughly \$6.5/treated gallon. Nearby in Pensacola, Fla., Emerald Coast Utilities is undertaking a similar project to relocate the aging Main Street WWTF to an upland location. The new plant will have a capacity of 20 mgd; and the estimated costs for this project are right at \$302 million or roughly \$15/per treated gallon. Much of these apparent savings is directly attributable not only to the design-build processes used by OCWS, but to the quality and caliber of our consultants, contractors and OCWS staff to self-perform.

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