

One Upgrade Deserves Another

New breakers usher in modernized wastewater treatment plant.

As the country moves farther into the 21st century, the need for new infrastructure and facilities is becoming more and more apparent. Whether dictated by hazardous materials within an original construction or general wear and tear due to age, improvements and upgrades are needed in everything from roads to buildings. For the water pollution control plant in Arlington County, VA, new environmental regulations and increased capacity requirements were the catalysts for moving forward on a complete modernization of the facility.

Located along the Four Mile Run watershed near the Potomac River and Reagan National Airport, the plant handles almost 30 MG of raw wastewater each day. Originally opened in 1937, the facility has undergone a number of expansions and additions since its inception. As with most renovations of its kind, the latest proposed overhaul to the plant was to be both extensive and expensive.

"This is a multi-million dollar project and when it's all said and done our work at the treatment plant will last more than two years," said Jeff Stecklein, job superintendent for ACECO, LLC (www.acecoworld.com), a demolition and renovation contracting firm. Founded in 1936, the company has been the primary contractor on dozens of high profile jobs in the District of Columbia metropolitan area, including projects at the Kennedy Center, the U. S. Treasury building, and the Pentagon.

ACECO came into the modernization project in August 2004 through a subcontract from Fru-Con Construction Corporation (www.fru-con.com). Since that time, the company has picked up several other contracts at the plant. Between 40 and 50 ACECO



The optional DustProtector system provides an additional seal to keep debris from penetrating the breaker through the lower bushing area.

employees have worked at the site in some capacity since the company has arrived. Anywhere from 10 to 15 employees are currently on the project, most of them involved with heavy equipment operation.

Among the services performed by ACECO are selective interior demolition, heavy wrecking, concrete recycling, and environmental remediation. At the Arlington plant, all the services have been needed as the company has been involved in the removal of lime reaction tanks, carbon filter buildings, asbestos abatement, and extensive concrete demolition and recycling.

"The asbestos removal was pretty straightforward, but the thickness of the concrete certainly got our attention," said Stecklein. "Some buildings had 24-inch thick concrete walls to be broken and some slabs were even thicker than that."

With concrete demolition being a

fairly common aspect of the company's projects, ACECO has had a lot of experience using its own breakers to handle such a task. However, as the job proceeded forward and more work was awarded, the company thought it best to supplement its fleet with more breakers and excavators.

"We decided to purchase some additional equipment, so went through the local Liebherr Equipment Source dealer and brought in a new excavator and new breaker," said Stecklein. "They encouraged us to look at an Atlas Copco [www.atlascopco.com] HB 3000 hydraulic breaker attachment." ACECO was impressed with the breaker's production during a trial period and purchased it in a package with a Liebherr 944 (www.liebherr.com) excavator in February 2006.

"In addition to the dealer's recommendation, we decided to try the Atlas Copco breaker because it was readily

available and could be set up on the excavator quickly,” said Stecklein. “I had a lot of experience with a different brand and always thought those breakers did a solid job. But during the test period this breaker outperformed the breakers we already had on the project, and it just seemed to be suited perfectly for the setting in which we’re working.”

A big factor in the ongoing demolition at the pollution plant is the dusty environment, a situation that is intensified while concrete is being broken. ACECO routinely sprays the work zones with water to help contain dust from spreading around the site and to surrounding areas, but the breakers themselves remain exposed to debris.

Stecklein cited the lubrication and dust guard systems as key aspects of the breaker that protect and keep it running at peak efficiency. “Whenever we’re demolishing an old concrete facility, things are going to get dirty and dusty,” said Stecklein. “If too much of that dirt gets on a breaker’s tool steel, it could cause major damage to the breaker if there isn’t enough grease on the tool to combat the issue.”

Automatic Lubrication

The HB 3000 features ContiLube II, the breaker’s standard automatic lubrication system that consistently provides lubrication throughout the breaking process. “The automatic lubricator is much better than anything that we’ve used prior,” said Stecklein. “And since the grease cartridge is mounted right on the breaker, all the operator has to do is glance at it to make sure it’s not empty. On any job which is dependent on heavy equipment, minimizing downtime is obviously a huge asset, and we have been very pleased with the durability of this tool.”

Further aiding the lubrication process is the breaker’s DustProtector system, an optional feature that provides an additional seal to keep debris from penetrating the breaker through the lower bushing area. The system also helps to keep lubricant in the lower bushing for a longer period of time, thus helping to prevent wear and other potential damage.

ACECO was so impressed with the productivity of the HB 3000—and its

built-in preventive maintenance features—that when asked to perform additional demolition, including the breaking of a 40-in. thick concrete floor, the company brought in an Atlas Copco HB 4200 in June 2006. The two new breakers each produce a maximum impact rate of more than 500 blows per minute while delivering approximately 4,500 and 6,000 ft-lb of impact energy, respectively.

“We gained great production with the Atlas Copco breakers,” said Stecklein. “The HB 4200 has been outworking our previous 8,000-pound hammer by about a three-to-one margin, and it has just been tearing the concrete to shreds.”

Because the concrete on the plant demolition project was particularly well reinforced, having breakers with enough force to effectively shatter the material was important. But utilizing the full available force can be extremely damaging to a breaker’s components when lighter material is encountered. With some brick buildings and other lighter structures on the site, too much power could have been a major concern.

Like any company, ACECO wanted to protect its equipment investment from unnecessary strain. Fortunately, the new breakers feature an AutoControl system that automatically adjusts output energy by allowing only 50 percent of the available power to be delivered when breaking begins. Once the breaker determines that the material is solid, it then begins to work at 100 percent capacity.

“The AutoControl system really keeps the power in check,” said Stecklein. “And you know that it’s working because the breaker essentially ‘speaks’ to you. You can hear it hit in certain fashion when it sets itself

and then it hits differently when it’s tight into the material and breaking it. And once it has broken through, it changes pace again. Those adjustments clearly prevent a lot of stress on the equipment.”

Stress can certainly come about on a job site when 12,000 cu yd of concrete weighing 24,000 tons must be removed, but ACECO has found the task to be relatively hassle-free. In addition to the hydraulic breakers, the company’s equipment fleet on the job includes five excavators, two universal processors, one material processor, and an on-site crusher. Some of the concrete from the site is being crushed and resold, while some will be re-used during the new construction phase of the modernized plant.

Current plans call for the facility to have its facelift completed by 2012. By then the renovated plant will comply with stricter state and federal regulations that are anticipated to be in place. As construction moves forward on the improvements that will upgrade Arlington County’s water program, one can’t help but notice how the project has also allowed the region’s most experienced demolition contractor to add two upgrades of its own. GE



The AutoControl system allows the breaker to sense when the material is solid before allowing it to work at 100 percent capacity.