

**Site-K
Construction Zone
page 1**



**Industry News
page 26**



CONSTRUCTIONEER

Edition

*Serving Delaware, New Jersey, New York and Pennsylvania
Since 1945*

HOLTWOOD'S HYDROELECTRIC POWER PLANT EXPANSION

**Major construction will
result in much-needed
electrical capacity**

By Jeff Winke

The British science fiction author, inventor and futurist, Arthur C. Clarke, once said: "Any sufficiently advanced technology is indistinguishable from magic." Certainly, technology is one of those things where the latest and newest is often best, if not magical.

Case in point: The massive construction project that will result in the addition of a new, technologically-advanced hydroelectric power-generating station in Holtwood, Penn. The facility will be attached to an existing 100-year-old powerhouse that has been generating electricity since 1910. When completed, the advanced technology found in the new plant's twin turbines will outperform the old plant's 10 turbines – the magic of newer technology.

There are quite a few steps before the new plant's turbines will begin spinning. Walsh Construction, Chicago, is the general contractor for the estimated \$440 million project being completed at the Holtwood Hydroelectric Plant for PPL Corporation (Pennsylvania Power & Light), Allentown. PPL currently controls over 11,000 megawatts of electrical generating capacity in the United States, primarily in Pennsylvania.

A significant subcontractor on the project is Maine Drilling & Blasting, Inc., (MD&B) whose Mid-Atlantic Division is headquartered in Myerstown, Penn.

"We're responsible for all the drilling and blasting for a new hydroelectric plant addition situated in a tight space between railroad tracks and the existing powerhouse which are both operational, as well as some 5,000 ft. down river and beyond the Route 372 bridge," states John Capasso, president of MD Drilling & Blasting, subsidiary of Maine Drilling & Blasting, and MD&B's project manager for Holtwood. "After our initial focus on making room for the plant, we also will be widening and increasing the depth of the river to increase the speed and volume of water powering the turbines."



A congested work site requires each individual to keep an eye out for each other.

Opportunities

We're moving into the final quarter of

this year. According to the National Bureau of Labor Statistics, "Unemployment rates were lower in June than a year earlier in 185 of the 372 metropolitan areas, higher in 168 areas, and unchanged in 19 areas. In June, 226 metropolitan areas reported over-the-year decreases in nonfarm payroll employment, 135 reported increases and 11 had no change." Construction unemployment continues to run high with it being in the 20-percent-plus range in some areas of the country. Fortunately, some areas are showing improvement.



**It's 11 AM. Do you know
where your crews are?**

Keep track of people and projects
with Verizon Wireless.



verizonwireless.com/construction

1.800.VZW.4BIZ

© 2010 Verizon Wireless.

ACIP
1200 South Madison Ave Suite 1120
Indianapolis, Indiana 46225
CHANGE SERVICE REQUESTED

Presorted Standard
U.S. Postage
PAID
Lebanon Junction, KY
Permit # 737

Holtwood's Hydroelectric Power Plant

EXPANSION



Owner:
PPL Corporation (Pennsylvania Power & Light)

General Contractor:
Walsh Construction

Drilling and Blasting Contractor:
Maine Drilling & Blasting, Inc.

MD&B got its start in 1966 in Gardiner, Maine and has grown to employ approximately 350 full-time union and non-union employees. The company handles projects located in the Eastern U.S. from simple house foundations to the current, large and complex Holtwood power plant project. The company is active in the energy market with experience in a variety of energy-related work including utility, wind, marine and pipeline.

MD&B must complete the site prep for the new building in approximately eight months, and will take another year and a half to remove one million yards of rock in total through extremely accurate and controlled blasting, with over 100,000 linear ft. of line control. The company's core technical field crew includes the site superintendent, field engineer, a drilling superintendent heading up 15 drillers and a blasting superintendent who is in charge of six blasters.

The first major activity on the site was for Walsh to build a cellular cofferdam to close off the existing forebay, keeping water out of the area of the new excavation, MD&B worked closely with Walsh to blast an underwater trench for the cofferdam to key the structure into solid rock. The cofferdam activity took two-and-a-half months.

With the temporary cofferdam in place MD&B began blasting a 130 ft. deep cut for the powerhouse foundation. Pre-split holes of 3.5-inch diameter were drilled at three-foot on center intervals, using Atlas Copco D-7 hydraulic track drills. The blasting crew loaded these holes with customized pre-split explosives. The explosions are designed to radiate out to the sides to fracture the rock face structural neat-line limits and greater control when production blasting commences.



The view from a safe distance of one of the many production blasts. Shown here is a blast yielding 3,000 cubic yds.



Safety director Rick Galletta and project superintendent Hod Wing reviewing the hazards of the congested work site. The construction team proactively approaches the future hazards working in the New Powerhouse excavation.

Page 3: Enough rock to require two CAT385 excavation fronts.

“For both the pre-splits and the production blasting, we’re using the latest programmable, electronic detonator system technology which we continue to pioneer in the drilling and blasting industry through application in both quarry and construction operations,” says Capasso. “With tight vibration and aggressive production requirements, this technology is a must.”

In creating the site for the new powerhouse, MD&B removed 310,000 yds. of rock. The new building will measure 170 by 230 ft. and requires Walsh to excavate 130 ft. deep from the existing powerhouse.

The technically-challenging excavation is being completed in six ft. lifts to allow for rock bolt installation. The excavated “hole” measured 180 ft. wide and 450 ft. long. The extra length over the building dimension was to ensure unimpeded free-flow for the water.



Shown here is the first 35 vertical ft. of controlled blasting within 25 ft. of the existing Powerhouse and Forebay Cellular Cofferdam. Another 100 vertical ft. will be required to reach the base of the Powerhouse.



It takes a special breed of individuals to maintain the quality drilling, blasting and rock bolting work being performed at the Holtwood Hydroelectric Project.

Part of what makes the Holtwood Hydroelectric Plant desirable is the green nature of electricity generated by hydropower. It is the most widely used form of renewable energy. Once a hydroelectric complex is constructed, the project produces no direct waste, and has a considerably lower output level of the greenhouse gas carbon dioxide (CO₂) than fossil-fuel-powered energy plants. In addition, the Holtwood expansion project will create more than 200 “green energy” construction jobs, and provides for additional jobs for key contractors and suppliers such as the nearby Voith Hydro manufacturing plant in York, Penn., which is producing the turbines for the project.

“This is the biggest project we’ve worked on to date,” Capasso states. “And when it is completed in 2013, there will be plenty to be proud of. Of course, from our perspective, it would be nice if our handiwork was more visible, but instead, it will be under a river that will look as natural as if nothing had ever disturbed it.”

Capasso continues: “It will also be rewarding to know that by design our work never bothered the shad and other fish living in the river as well as the numerous eagles we saw throughout the project.”

The power plant addition will add a much-needed source of electricity to Lancaster and York Counties, while being a sterling example of renewable energy in this time of environmental concern. 🧡

Phase II will address water channel expansion areas of the upstream forebay and the downstream trailrace. The existing hydroelectric power plant channel will be widened as well as deepened to facilitate higher water flows from the new turbines. The riverbed blasting will run approximately one mile with numerous fingers, and will deepen the Susquehanna River by 12 to 15 ft. Staging this work requires a plan that accommodates the current powerhouse river flow as the channel is blasted deeper and wider. Consequently, blasting is scheduled over two years. The blasting constraints include controlled blasting in the proximity of the Route 372 bridge piers.

MD&B anticipates that they will have completed at least 267 explosive blasts requiring 1.8 million lbs. of liquid emulsion (350,000 lbs. alone for the building site) when the project is completed.



Blasting superintendent, Dana Lawrence, communicates with each detonator via a handheld computer to ensure proper timing for each blast round.



What's in a Name?

Buffaloes aren't really buffaloes at all. They're bison – a whole different animal. And **Maine Drilling & Blasting crews don't travel from Maine every morning to work on your project.** Our founder named us Maine Drilling & Blasting, just **because we started in Maine over 40 years ago.** But rest assured, our people are local. They live and work in neighborhoods just like yours all over the Northeast. So, if you've got rock, please **don't get hung up on a name.** The buffalo doesn't.

Maine Drilling & Blasting

PA: 800-422-4927

NY: 518-632-9170

CT: 860-242-7419

