International Paper Mill Demolition Completed with Wire Sawing

after other demolition methods are exhausted

The former International Paper Mill in Gardiner, Oregon was reduced to 4,000 tons of rubble one Saturday morning last spring as 90 pounds of explosives imploded the 12-story structure. The sawmill and paper plant located on the coast of central Oregon, west of Eugene, had been out of commission for eight years and was being demolished to make way for a new wave-generated power plant.

Staton Companies was hired as the demolition contractor. Much of the material at the mill was salvaged to be recycled. Most of the steel and about one million pounds of copper wire would be recycled and 200 tons of concrete would be crushed into smaller pieces for reuse. And 200 tons of debris would go to landfills. Work continued smoothly until Staton ran into a slight problem—actually a big problem; namely how to dispose of four solid cast iron rolling pins, each measuring 20 feet long and 40 inches in diameter. These rollings pins had been used to press the pulp into paper. Each pin had an outer shell casing 2 to 3 inches thick which measured 80 to 90 on the Rockwell scale of hardness. Each pin weighed approximately 100,000 pounds or 50 tons. Staton needed to cut them into smaller pieces for removal.

They tried various methods to cut these rolling pins into smaller sections so that they could be removed. They tried arc welding, wrecking balls and hydraulics breakers. Nothing worked. They even tried dropping one of the cylinders from a crane in hopes that it would break as it hit the ground. Nothing worked.

Finally, Staton Companies contacted CSDA member American Concrete Cutting in Coburg, Oregon, a CSDA contractor member with whom they had worked previously and had a good working relationship. They thought that maybe American Concrete Cutting could come up with a solution. American Concrete contacted CSDA manufacturer Concut Diamond Products to find out if there was a wire capable of cutting through very hard steel. "We received a call from American Concrete Cutting about a special job," said Keith Leingang from Concut Diamond Products. "We discussed what equipment would work and decided that

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The wire saw was used to cut half way through the steel rolling pin.

A cut piece was used to drop on to the remaining three pins to break them into pieces small enough to be carried away.

a Golz KS 600 wire saw with electroplated wire just might work. "We thought that wet cutting with a wire saw pulling electroplated wire might be the way to go. The hard coating was certainly a challenge," he added.

Staton Demolition shored up one rolling pin so American could carry out a test cut. American Concrete Cutting operators welded a plate on one of the cylinders and mounted the wire saw and proceeded cutting. The wire definitely progressed but it was definitely eating up a lot of time. During the time the first pin was being cut, operators began calculating the amount of time it would take to cut the remaining pins as originally planned and found that it would be extremely costly and time consuming.

However, two wire saw operators working 10 hour shifts were able to cut the piece about 16 inches, or about half way through. This cut helped to make the cylinder a bit more unstable and the general contractor was able to lift the piece and snap it in two pieces.

Then, with this 33,000 pound cast iron piece available, the general contractor used it to break the remaining pieces into sections that could be removed. This method was repeated for each steel pin. Even though American Concrete had no deadline for the job, they still wanted to complete it as quickly as possible keeping costs down.

Since most of the demolition work of the mill site had already been completed, the cutting team had easy access to the work site. The one factor worth noting was selection of wire. Because of the extra hard coating on the shell of the "rolling pin", electroplated wire which could take the heat was chosen and it performed admirably. On this job, it wasn't the cutting of concrete as much as it was adapting concrete cutting equipment to the job application. The equipment and wire that was selected worked out well.

"We were satisfied with the outcome of the project," said Leingang. "Although wire sawing worked well for this application, not having to cut the complete circumference of these pins really saved a lot of time and money." It could have been a very troublesome delay for the demolition contractor if this method for cutting and removing the cast iron pins had not worked out." ■

COMPANY PROFILE

American Concrete Cutting, based in Coburg, Oregon has been in business since 1982 and a member of CSDA since 1999. American Concrete Cutting specializes in all methods of concrete sawing, core drilling and demolition.

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