



DIAMOND TOOLS NOT JUST FOR CUTTING CONCRETE:

WIRE SAWS USED TO CUT STEEL AT MEMPHIS CHEMICAL PLANT

In Memphis, Tennessee a chemical plant recently discovered the benefits of using diamond technology for a demolition project they needed completed.

All concrete sawing and drilling industry professionals recognize the advantages of using diamond-cutting systems for a job instead of more traditional and destructive methods of demolition such as jack hammering or wrecking ball. Depending on the type of project, the advantages of precision cutting can vary from the ability to cut in areas of limited access and the ability to cut heavily reinforced concrete to reduced

downtime and a reduction in noise, dust and debris. These advantages provide an obvious choice for sawing and drilling contractors but for those outside of the sawing and drilling industry, precision cutting with diamond tools represents a demolition technique that is totally new.

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Top: Diamond wire sawing was used to cut the ends of a steel boiler at a chemical plant in Memphis, TN.

Middle: Each boilerplate was 11 feet in diameter and 0.5 inches thick.

Bottom: A detailed view of the precise cut made with the diamond wire saw.



Lucite International, Inc. is a global producer and seller of methyl methacrylate (MMA), the principal building block of Acrylic materials. The Lucite® brand is the cornerstone of the American sheet and resins business; indeed for most people Lucite is acrylic. With sixteen plants in 9 countries, Lucite International produces MMA at three plants: Taiwan, the United Kingdom and Memphis, Tennessee.

In April 2006, Lucite International of Memphis contacted CSDA contractor Bluegrass Concrete Cutting, Inc. of Greenville, Alabama about the demolition and removal of a steel boiler. Lisa Mullen, President of Bluegrass believes her company was contacted because they offer more than just concrete cutting. Since being founded in 1979, Bluegrass has specialized in diamond wire sawing of not just concrete but also steel and metal and they also provide electric and hydraulic robotic hammering in the bridge, cement, commercial, hydro/ marine, nuclear, petrochemical, power, pulp and paper, metal, steel, railroad and tunnel markets. In addition, Bluegrass offers construction engineering and project management support. They also advertise that they have 25 technicians and wire saws available for nationwide mobilization within 48 hours.

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In dismantling the boiler, Lucite International needed to remove two end risers from the steel boilerplate which were 11 feet in diameter and 0.5 inches thick with a refractory lining 10 inches thick. In the past, men were hired to enter the boiler through a manhole, chip off the refractory lining to expose the steel shell and then use a blow torch to cut it. This method was dangerous and time-consuming. Sawing the risers with a diamond wire saw would cut through both the steel shell and the refractory lining, providing a safe and efficient alternative to the previous method of cutting.

To complete this job, Bluegrass operators first mounted the wire saw to base of the steel boiler. Then they wrapped the diamond wire around the end of the boilerplate where the cut was to be made. Then they began the sawing. Operators had to keep the end section secured while it was cut so it did not pinch the wire. The first boiler was cut with no interruptions and no problems in about 10 hours. When the cut was complete, the riser complete with boilerplate and refractory lining was ready for removal.

They repeated this same process with the second opposite end but while cutting the second plate, some difficulties were encountered. On the second riser, the section began to move as it was being cut and operators had to stop cutting. Since the cut was almost complete, the remaining 18 inches were cut using a blowtorch.

Each cut took less than one shift and the job was completed in the two day time period. When the cutting was complete, over 300 square inches of metal and 60 square feet of refractory were cut with the diamond wire saw. Even though wire sawing is normally associated with cutting concrete or stone, the operators at Bluegrass Concrete prove that the applications of diamond tool technology can push the boundaries. ●

COMPANY PROFILE

Bluegrass Concrete Cutting, Inc. of Greenville, Alabama performs specialized concrete and metal demolition services worldwide. The company offers services in several areas of selective demolition including consulting, construction engineering, project management, diamond wire sawing, core drilling, concrete contamination shaving and robotic hammering. Bluegrass also has substantial nuclear experience including fast-track shutdowns, fossil power, petrochemical and steel renovations. They operate 30 diamond wire saws and 25 robots. Bluegrass attributes their success to a dedicated management team and their 25 highly skilled demolition technicians, 20 of which have extensive nuclear experience and 21 of which have 40-hour hazwoper training. Bluegrass has been in business since 1979 and has been a member of CSDA since May 2005.

RESOURCES:

General Contractor:
Lucite International, Inc.
Memphis, TN
Sawing and Drilling Contractor:
Bluegrass Concrete Cutting, Inc.
Greenville, AL
Methods Used: Wire Sawing
Tel: 334-382-0200
Fax: 334-382-0815
Web: www.concretecutters.com