

Feature Story

CONTROLLED DEMOLITIONS FOR TENARIS TAMSA STEEL PLANT IN MEXICO.

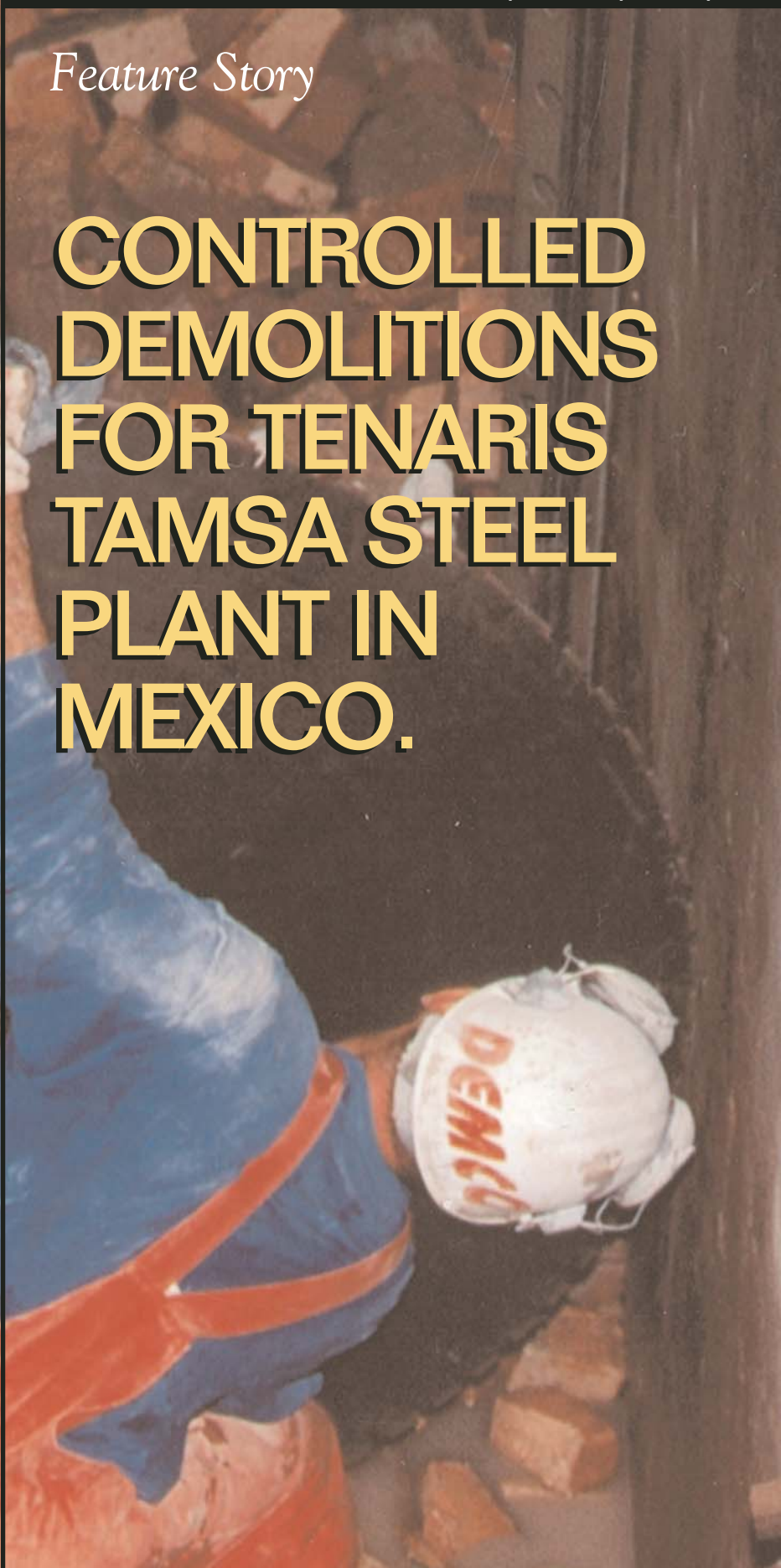
Tenaris Group is a worldwide leader in the production of seamless steel pipes for oil, gas, energy and mechanical industries. It is considered to be one of the largest regional suppliers of welded tube for gas pipelines in South America with service centers and plants in more than 20 countries including Argentina, Brazil, Canada, Italy, Japan, Mexico, Romania and Venezuela.

Eight plants are established worldwide under the name of Tenaris, including the Tenaris Tamsa plant in Boca del Rio in Veracruz, Mexico. With an annual production capacity of 780,000 tons of seamless steel pipes and a workforce of 2,500 employees, the Tamsa plant has state-of-the-art facilities that include a steel shop, a continuous mandrel mill, a pilger mill, extensive heat treatment, finishing lines and a cold-drawing facility. As Tenaris saw the demand for seamless pipes rise, generated by the expansion of the oil industry, they felt that improved production capacity and quality, with more restrictive standards, were needed.

Members of Tenaris Tamsa technical staff decided to remodel their rolling mills by removing two old furnaces and installing two new tempering furnaces. Tenaris and general contractor, Techint, discussed several methods for demolition, including a chemical demolitions system and use of high-pressure water. Excavating with hammers or hydraulic crushers was restricted due to the depth needed for excavation and because of the civil works connected to the project. Access to the area was also restricted because the plant still had operating pipes very close to the area. At the same time, the demolition method used had to ensure that the integrity of the reinforced concrete structures were not compromised for they had to be reused for the new furnaces' installation. In addition, only five days could be allotted for the demolition.

After several months with nothing resolved, they decided to consult the Ferretti Spa Group in Italy for help in finding a better solution for the demolition of the concrete foundation. The engineering department at Ferretti Spa developed a plan to

Operators change blades.



satisfy the logistical problems of the project and insure the availability of the resources necessary for the demolition project. The demolition would require the removal of 600 tons of reinforced concrete and 50-meters of refractory lining. They determined that the best methods to cut and remove this amount of concrete would be with wall sawing and wire sawing with diamond tools. The project was submitted to CSDA member, Fyre S.A. de C.V., who accepted the challenges of the project because of their expertise in traditional and controlled demolition projects using diamond tools. The Fyre Controlled Demolition staff conducted a detailed inspection of the demolition area to compare compliance standards with the engineering plans.

The first step was the demolition of the refractory lining which was completed with pneumatic hammers. Then a team of operators, together with the surveyor, began tracing the cuts and coring alignments. Two teams began cutting the concrete blocks while another team began coring the holes that would carry the wire for the wire sawing portion of the job as well as the holes for the rigging and removal of the cut pieces of concrete. Three diamond wall saws with

blades ranging up to 1600 mm in diameter were used for the wall sawing portion of the job. More than 400 holes were cored for this project, ranging in diameter from 4 to 8 inches.

Concrete removal was accomplished by the use of a 50-ton bridge crane with a load capacity of 10 tons. The cutting was carried out in two 12-hour day shifts and workers wore all Personal Protective Equipment required to ensure that no accidents happened on the job. The project was completed within the 5-day time period, coming in at 108 hours instead of 120 hours originally planned.

Fyre utilized 4 technical supervisors, 2 safety officers, 1 surveyor, 5 wall and wire sawing specialists, 8 core drilling specialists and 10 assistants to ensure the demolition was executed safely, effectively and within the five day time period allotted for the project.

Dr. Paolo Ferretti, holding general executive manager for Fyre, acknowledged the success of the performance in Mexico. "Years ago we had already begun to believe in the possibility of developing advanced controlled demolition technologies in Mexico, despite the strong use of traditional techniques," said Ferretti. "With the

success of this project, we are able to show that we were right."

The completion of this project provided Fyre S.A. de C.V. with a referral for three more demolition projects. One was the demolition of a bridge in Chiapas, Mexico, another was the demolition of a bridge in Queretaro, Mexico and the other was the controlled demolition of the bulkheads of a 50-meter deep well in Mexico City. ●

COMPANY PROFILE

Fyre S.A. de C.V., located in Boca del Rio in Veracruz, Mexico, was founded in 2000 and has been a CSDA member since 2003. The international company is dedicated to refractory installation and maintenance, industrial construction and civil works. The company specializes in the assembly of refractory coatings of furnaces for steel mills, rolling mills, incinerators, refractory chimneys, coatings of furnaces for glass production, lime and cement. They also specialize in traditional and controlled demolition projects using diamond tools.

RESOURCES:

General Contractor:

Techint

Mexico, D.F., MEXICO

Sawing and Drilling Contractor:

Fyre S.A. de C.V.

Boca del Rio, Veracruz

MEXICO

Methods Used: Core Drilling, Wall Sawing, Wire Sawing

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Wall sawing is done remotely at Tenaris Tamsa plant.

Inset: The concrete slabs were removed as they were cut free.