

151 pipe elbows refurbished and protected against abrasion using 1.5 tonnes of Belzona 1812

ID: 10319

Industry: Power
Application: SHM-Solids Handling Machinery
Substrate: Cast Iron
Products: Belzona 1812 (Ceramic Carbide FP)

Customer Location: Southwestern Croatia
Application Date: June 2024

Problem

The firing system at a coal-fired power plant comprises six coal mills, from which pulverised coal is transported through pipework to 24 burners. The system includes 151 pipe elbows, together with additional pipework components, which are exposed to severe abrasion caused by coal dust particles in transit. This abrasion resulted in loss of pipe wall thickness, creating a risk of breakthrough, unplanned production shutdowns and serious safety concerns, particularly because coal dust is flammable and potentially explosive.



Pipework leading from the coal mill to the burners.



Pipe elbow showing remnants of the previous Belzona 1812 application.



One of the most severely damaged pipe elbows before application.



Pipe elbow after application of Belzona 1812.

Application Situation

The first Belzona applications in these areas were carried out between 2007 and 2012, with one mill completed each year (KHIA No. 1005). At that time, the customer required rebuilding of the worn substrate and the application of an additional 3 mm abrasion-resistant layer over 50% of each pipe elbow, covering the most exposed section. In 2024, the customer requested a new application; however, this time all six mills and all associated pipe elbows had to be completed during a single turnaround. Based on previous experience, the average material consumption per elbow was known, allowing the total requirement to be calculated at approximately 1.5 tonnes of Belzona 1812.

Application Method

The application was carried out in accordance with Belzona Know-How System Leaflet SHM-8. The surfaces were abrasive blasted, degreased and dedusted in accordance with the Belzona 1812 Instructions for Use. Belzona 1812 was then applied using Belzona

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FS 695214
ISO 14001:2015
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application tools to rebuild the worn areas and provide an additional 3 mm layer of abrasion protection.

Belzona Facts

The customer selected Belzona primarily due to their positive previous experience with the system. As shown in Picture 2, after a minimum of 12 years in service following the original application, remnants of the previous Belzona 1812 lining were still present on some pipe elbows and could not be removed by abrasive blasting. After two years in service following the 2024 application, feedback from the customer confirmed that no external issues were observed during the annual turnarounds in 2025 and 2026. As a result, dismantling and detailed internal inspection were not required.

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