

Belzona Extends the Life of the Heat Exchanger

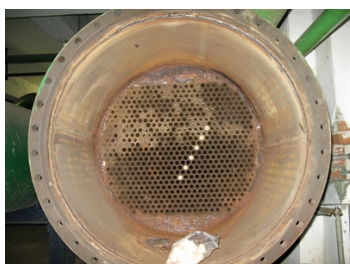
ID: 10307

Industry: Power
Application: HEX-Heat Exchangers
Substrate: Cast Iron
Products: Belzona 1321 (Ceramic S-Metal)

Customer Location: Croatia
Application Date: March 2011

Problem

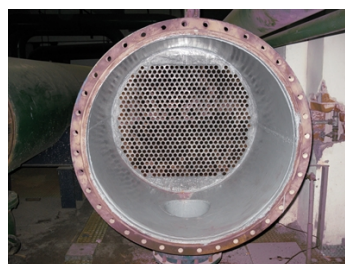
Continuous exposure to high-velocity cooling water and turbulent flow was causing aggressive erosion-corrosion across the heat exchanger's carbon steel tube sheet (mirror) and around the tube inlets. If left unaddressed, this localized pitting and metal loss risked causing fluid leaks, cross-contamination, and eventual structural failure, severely threatening the power plant's operating efficiency.



Corroded and eroded heat exchanger



Protection of Belzona 1321 on heat exchanger



Finished application of Belzona 1321 on heat exchanger



Finished application of Belzona 1321 on heat exchanger end cover

Application Situation

During a scheduled maintenance shutdown in March 2011 at a coal-fired power plant in Croatia, engineers inspected a vital heat exchanger unit and discovered advanced surface deterioration. To avoid a highly expensive equipment replacement and eliminate the risk of an unscheduled forced outage, the plant operators required a rapid, heavy-duty barrier coating capable of long-term immersion service.

Application Method

The repair and coating application were executed in strict compliance with the Belzona Know-How System Leaflet HEX-3. The carbon steel tube sheet was first grit-blasted to achieve an angular profile meeting the ISO 8501-1 Sa 2½ cleanliness standard. The surface was then thoroughly washed and decontaminated using Belzona 9111 (Cleaner Degreaser).

To prevent the coating from blocking the tube openings, custom-fit plugs were inserted into each tube end. Belzona 1321 (Ceramic S-Metal) was then mixed and applied onto the tube sheet face to create a seamless, erosion-resistant shield. The plugs were carefully removed before the polymer fully cured, leaving clean, sharp, and unobstructed edges at the tube entries.

Belzona Facts

Traditional mechanical repairs or weld overlays would have introduced unwanted thermal stresses, extended the shutdown period, and incurred prohibitive capital costs. By selecting Belzona 1321, the power plant rehabilitated the existing asset completely in situ within a tight maintenance window. The ceramic-filled epoxy coating provides exceptional resistance to entrained solids and turbulent water flow, effectively extending the operational life of the heat exchanger for years to come.

For more examples of Belzona Know - How In Action, please visit <https://khia.belzona.com>

ISO 9001:2015
FS 695214
ISO 14001:2015
EMS 695213

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