

Eliminating Electric Arc Furnace Roof Leaks Saves US\$80,000 In Repair Costs

Challenge

Water-cooled electric arc furnace roofs at this Ohio steel-producing facility were failing, requiring costly repairs that averaged US\$175,000 annually. The failures were caused in part by plugged cooling spray nozzles and scale buildup that reduced heat transfer, resulting in damaging thermal fatigue.

Solution

GE Water & Process Technologies and company personnel reviewed the process to identify problem areas and possible solutions. A trial run confirmed that Continuum* AEC3107 was the most effective treatment program to control the scale buildup. Additional measures included screening in the towers to prevent debris from entering the system, improving acid storage and delivery procedures, and making straining and filtering operations a priority. A continuous improvement team was established to follow up on system performance.

Results

The corrective measures eliminated all roof repair costs over a two-year period, resulting in a net annual savings credited to GE of US\$80,000. The new program reduced scaling deposits and nozzle plugging, and minimized safety concerns about handling acid.



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