CASE STUDY

CN105 Scale Cleaning Helps Nuclear Power Plant Regain 17.5 MW of Load Capacity, Improving Annual Profitability by an Estimated $5.4M

Background

A two-unit Midwestern nuclear power plant struggled to reach full power capacity as a result of calcium carbonate scaling in the main surface condenser.

Solutions

On the recommendation of the ChemTreat team, the power plant applied ChemTreat's CN105 treatment to the water boxes of each condenser while the units were on-line.

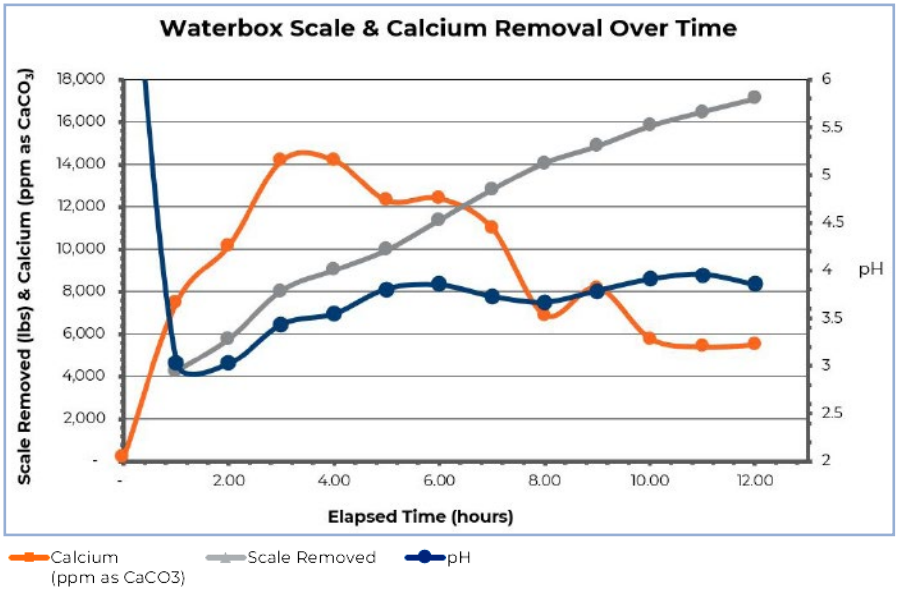
The cleaning solution was circulated through the water boxes to dissolve calcium carbonate scale from the heat transfer surfaces.

Results

CN105 helped the plant increase condenser vacuum by 0.5 inches of mercury, resulting in a load improvement of 10 MW on one unit and 7.5 MW on the second. The enhanced efficiency of the process will net the facility approximately $5.4 million per year (based on estimated revenue of $33.50 per MW-Hr).

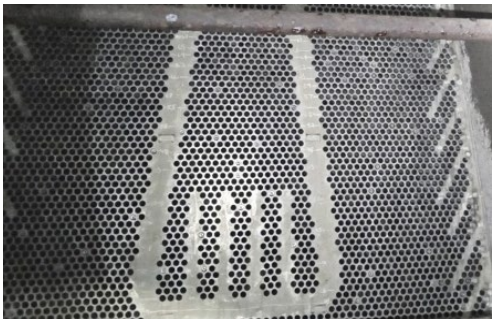
Thanks to the CN105 treatment, the plant lowered costs associated with unit derate and avoided expenses associated with buying alternative power at retail prices, resulting in additional savings.

This cleaning solution required no post-cleaning neutralization prior to discharging from the units.



More than 8 tons of calcium carbonate scale were removed from the water box over a 12-hour period.

Before CN105 Cleaning



After CN105 Cleaning

The plant estimates that CN105 cleaning will improve annual operating revenue by over $5.4M.

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