

## On-Line Boiler Deslagging Returns Efficiencies and Decreases Outages

### Problem

A Northeastern power generation facility developed a large slag deposit (clinker) in their largest unit. The station attempted several different methods to remove the clinker including increased sootblowing, varying load and burning off the clinker. While attempting to bring the unit off-line for deslagging, the clinker fell from the leading edge of the superheater and caused severe damage to the lower furnace slope and sidewalls. The clinker was the size of a small bus and fell approximately 100 feet. The damage required an extended forced outage to return the unit to service, followed by a lengthy overhaul to replace many of the damaged components. Several months later another clinker formed. This time the station tried to use a homemade water lance to remove the clinker but achieved minimal success. The lance was heavy and unwieldy and could not extend far enough into the furnace to reach the problem area. Once again the unit had to be taken off-line for deslagging. It became clear that taking the unit off-line for slag removal was not a cost effective solution. Since newer, cheaper coals were going to be burned for the foreseeable future, a new method of cleaning had to be adopted quickly.

### MPW Solution

MPW Associates evaluated the problem and discussed several potential cleaning methods with the plant project team. Cleaning on-line was paramount, so MPW utilized high pressure hydroblasting technology to safely remove the slag build-up and reclaim boiler efficiency. The

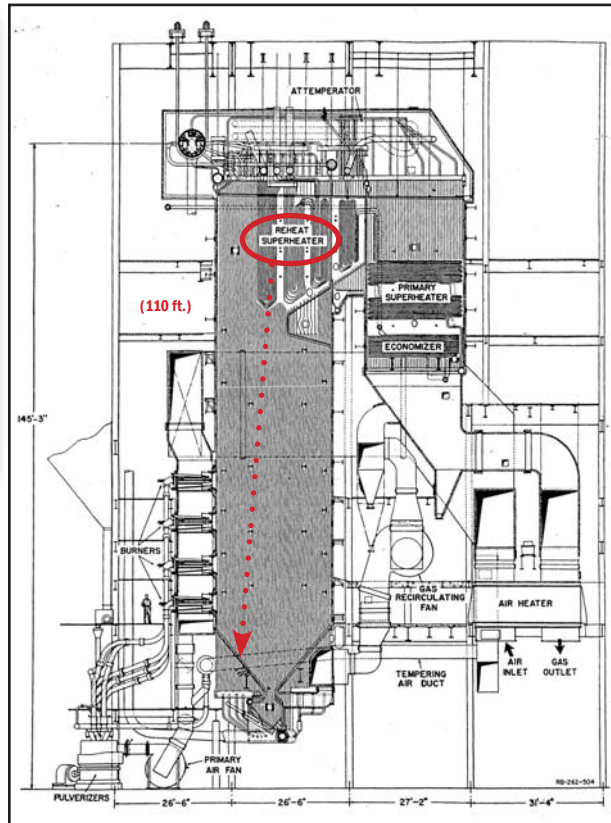


*Skilled technicians guide specially tooling into the boiler port to gain access to the clinker. MPW prides itself on innovative tooling and technology to remedy any customer concern.*

boiler had four pre-existing ports at different elevations on each sidewall and three observation ports along the front wall of the boiler. Using the existing portholes MPW went to work. A spotter was positioned on the front wall and directed blasting technicians positioned along the sidewalls via radio communications. The blasting technicians inserted their equipment into the ports and worked it across the leading edge of the clinker until it was completely removed. Utilizing MPW's proprietary waterblasting equipment, a 10,000 p.s.i. pump and a six-man crew including four technicians, one operator and one supervisor, MPW completed the job in approximately four shifts.



View through access point on the boiler wall. Coal powered boiler temperatures can range from 2200-2500°F, which creates high demands for cleaning equipment.



The boiler schematic highlights the clinker's dramatic fall from the superheater down to the lower section of the boiler.

## Results

Plant operations and maintenance forces inspect the boiler on a daily basis to monitor slag build-up and rely on MPW to knock the slag down before it impacts efficiency or grows to a dangerous size. MPW is on a regular cleaning schedule and visits the plant several times a month to "polish" the superheater. The plant's Outage Planner said that MPW's technique for cleaning the boiler is "an art form." Deslagging has been so successful that MPW has been integrated into the station's planned outage schedule, which cuts off-line time by as much as 8 to 10 hours. Working together the station and MPW have minimized offline deslagging and maximized efficiency. In today's highly competitive market, every hour off-line or at reduced load can translate to hundreds of thousands of dollars.