

POWER Engineering



Slag deposits on boiler tubes will act as insulation, preventing the heat produced by the boiler from transferring to the water inside the tubes. Photo courtesy: Clyde Bergemann

Best Boiler Cleaning Practices

For power plants burning anything other than natural gas, boiler cleaning is an important part of keeping the plant working efficiently.

Over time, boilers will build up ash that will form slag deposits on the boiler. Slag acts as an insulation that protects the tube from the heat

of the boiler, creating a need to use more fuel to reach the same temperature and produce the same output as a clean boiler. Cleaning slag deposits inside a boiler can increase boiler efficiency between 1 percent and 4 percent. Clean boilers can also reduce emissions produced by a power plant because less fuel is required to produce the same amount of power.

While the importance of boiler cleaning is clear, power plant operators have many options when it comes to techniques used to clear slag and ash buildup. Cleaning practices vary from offline cleaning, which requires a planned outage, to online cleaning that can occur while the plant is still operating. Methods can use everything from sound waves to dynamite.

EXPLOSIVES

Using explosives to clean slag from boilers isn't a new process, but it's one still in use that many plant operators prefer.

The method was first used by Norm Harty of N.B. Harty General Contractor Inc. Over the years, Harty said he and his staff have built the procedure into a state-of-the-art technique that can quickly clean the slag from a boiler and have it back online.

To clean a boiler using explosives, Harty said his company will use primer cord around tubes that are close to avoid damage. The cord has connectors to delay the chargers, which he said is important to avoid destroying the wall or insulation of the boiler.

Harty said using explosives has several advantages, including speed and

Areas that collect dry coal ash, such as convection passes, are best suited for acoustic cleaning. Photo courtesy: Advanced Accoustic Technologies



convenience. "With dynamite, you can put all of it in a pickup truck and clean any boiler," he said.

If slag is allowed to build up inside a boiler, it can lead not only to efficiency problems but can also cause damage because of the weight. Photo courtesy: Norm Harty



"Water is really scarce out west, and this is another reason explosives are being used predominantly in the western plants."

- Norm Harty, N.B. Harty General Contractor Inc.

Explosives also have an advantage in areas where plants are concerned about water use, he added.

"Water is really scarce out west, and this is another reason explosives are being used predominately in the western plants," he said. "They can't afford to waste a drop of water, and by using dynamite they're able to save their water and clean their boiler at the same time." **pe**

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