Belgian Customer

Application: Circulating Fluidized Bed (CFB Boiler)
Efficiency solution: Infrasound Cleaning
Cleaning area: Economizer

General info

Boiler: Metso/Valmet CFB Boiler
Fuel: RDF, untreated wood, municipal waste and sewage sludge
Capacity: 125 MWth

Installation

Type: Infrasound cleaner APX7000
Year of installation: 2023

Situation description

The Metso/Valmet CFB boiler, started up 2010, has steam data 45 kg/s, 60 bar, 475°C. It produces 45 MW electricity and delivers steam to the paper machines and heat to a nearby plant. The fuel that is used is mainly RDF (60 %) but also untreated wood, municipal waste, and some sewage sludge (up to 60 tons/day). The economizer is equipped with six explosion generators, three acoustic horns (audible frequency) and six steam sootblowers. The steam sootblowers are operated once a day.



Figure 1. APX7000 installed on the customer's CFB boiler

The horns and the explosion generators are operated every few minutes. Although these cleaning systems were used, the economizer accumulated a blockage during the year, with high differential pressure and a need for manual removal/brushing away the lumps/blockages.

Wave Impact Heat Management AB
E-mail: info@heatmanage.com
Phone: +46 8-661 33 10

Results

The project's purpose was to reduce the need for manual cleaning during the outage and stabilize the boiler's operation (fan speed, etc) of the boiler. Infrasound cleaning prevents lumps from forming by frequently removing dust-like deposits from tube bundles and inner walls of the flue gas duct.

The specific results of the installation are as follows:

- Better stability, approximately 3% lower fan speed.
- Pressure drop at targeted levels.
- Using infrasound cleaning has made the economizer cleaner, with a reduced pressure drop.

Differential pressure for 1500 days until summer of 2024
Infrasound cleaning commisioned

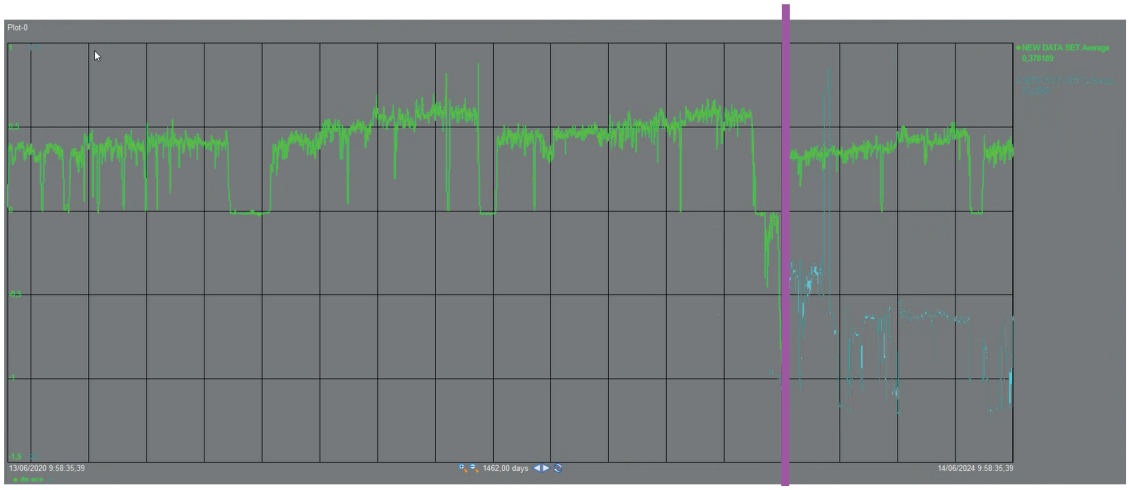


Figure 2. Differential pressure before and after Infrasound Cleaning

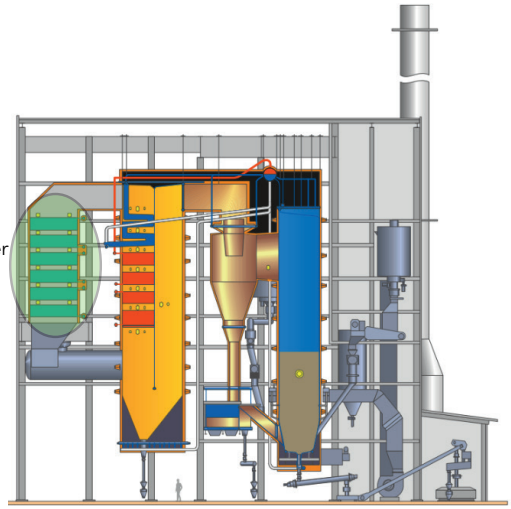


Figure 3. Boiler illustration with Economizer highlighted

The trend shows that problematically high differential pressure can be avoided, which was the goal of using infrasound cleaning for the Belgian Customer.

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