RENOVATION OF FLAME DETECTION SYSTEM ON WALL-FIRED BOILER

CASE STUDY

THE CUSTOMER

The Haiphong Power Plant is a 4×300MW coal-fired power station in Haiphong, Vietnam. Dongfang Boiler Group Co., Ltd. (China) supplied the wall-fired boiler. Each boiler has 24 igniter oil burners and 24 main coal burners; all are equipped with a competitor’s flame detector.

THE CHALLENGES

During normal operations, the flame detectors at the Hai Phong power plant were malfunctioning and prematurely failing. The suspected cause for this behavior was exposure to high temperatures in the vicinity of the installation.

1) The working temperature range of the existing flame detectors is -20 to +70°C. When temperatures exceed the unit’s upper performance range, the electronics suffered temporary malfunction and/or permanent damage.

2) In many cases, the flame detectors will simply stop working when overheated. However, some detectors have been observed to signal an incorrect alarm and flame status reports while in the overheated state, and then once the temperature drops, operate normally.

3) A cost-effective solution that can accommodate the higher temperatures at this installation is needed.
**SOLUTIONS**

Safe-Fire’s W-Flame Detection System was installed and demonstrated its effectiveness in this demanding environment.

1) Gradually replaced the existing split-architecture (separate scanner and amplifier) flame detectors with the W-Flame integrated scanner/amplifier detector. W-Flame’s higher temperature tolerance (+85°C) allowed it to provide critical flame status information, while the integrated design simplified installation and utilized the existing cable array to communicate with the DCS.

**RESULTS**

The renovation significantly improved overall flame status reliability and safety without imposing a major capital investment to the end users.

- ✔ Increased flame detector temperature resistance by 20%
- ✔ Decreased uncertainty in flame status updates
- ✔ Lowered equipment costs and the need for frequent maintenance
- ✔ Transition to W-Flame can be performed gradually as OEM equipment need replacing