

**Flame Detector Installation Delivers Reliable Results****SITUATION**

Unit #1 at the Western Farmers Electric Cooperative (WFEC) Hugo Generating Station is a B&W boiler with 35 burners. The burners are arranged in 3 rows of 7 in the front and 2 rows of 7 in the rear, all firing pulverized coal, while the igniters burn #2 oil. The original flame detection system utilized a 10 foot tube to view each burner. Mirrors were placed at the end to reflect the light from the burner up the pipe and to the detector.

The Hugo Generating Station had been using this obsolete flame detecting system for several years, and replacements/repairs became a priority. In 2004, as a part of the DCS upgrade (COEN provided engineering services for the BMS), Emerson Process Management ordered 35 *iScan* flame scanners for WFEC to replace the mirror-based scanner system.

Name: WFEC Hugo Station
Location: Fort Towson, Oklahoma
Boiler: Babcock & Wilcox
Capacity: 3,400,000 PPH
Rating: 475 MW
Fuel: #2 Oil & Coal

SOLUTION

The COEN *iScan* was chosen because of its ability to monitor multiple fuels, its features, easy setup, and high operating temperature. With the *iScan* mounted on the existing burner pipes, a new issue arose when the burner registers were manually adjusted to meet emission requirements. This caused the flame patterns on the burners to change



iScan Installed at Burner Front

in characteristics and to disappear from the detectors' viewing ports.

As a result, COEN customized a glass-based fiber optic assembly for the job. After successfully testing the design at the site, Coen provided WFEC the *iScan* with glass fiber optics using skewed lenses.

RESULTS

Each scanner was able to successfully monitor both coal and igniter oil flames under all loads and register positioning with full discrimination from background flames. Furthermore, the scanners did not need to be reconfigured when the registers were adjusted. The new fiber optic design also proved itself as a viable solution and certainly is an option for future cases with similar applications.

Call Today to Test the iScan on Your Boiler