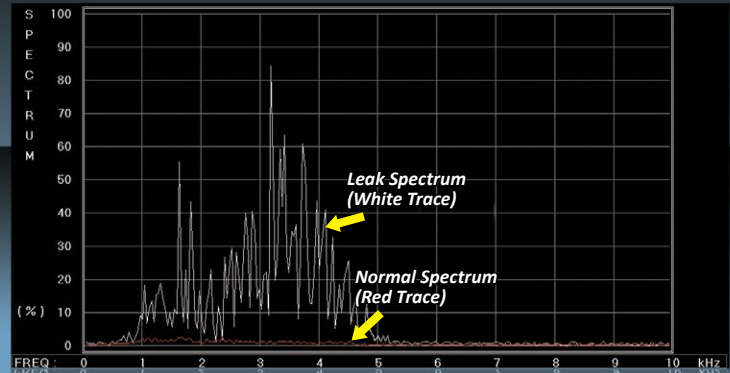


SENSOR 19, 30 DAY TREND



SENSOR 19, SPECTRUM

Leak History #46 | Masked Economizer Leak in a Recovery Mill

The leak occurred in the economizer section of a 4.20 MM lbs/day B&W PR-203, 2-Drum, Rear-Slope Hearth, Recovery boiler equipped with 30 metalborne waveguides. The sensor that detected the leak is welded to the tube membrane.

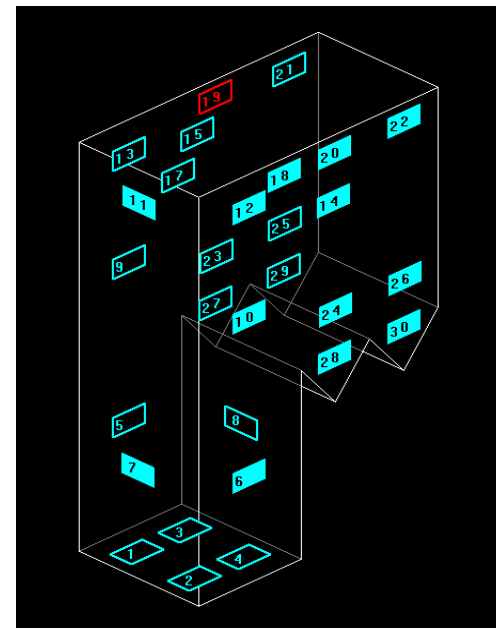
The acoustics for Sensor 19 first shifted from normal limits January 4. The increase was reported to the mill January 6, as part of the Surveillance Service. On January 20, the mill began to correlate possible operational changes driving the increasing acoustics, working in collaboration with the Acoustic Monitoring System (AMS) Surveillance team. The Chill and Blow (performed January 8) was eliminated as the driver of the acoustics at that time. The mill continued investigating and discovered two leaking sootblower valves. At that time, the mill was attributing the increased acoustics to the malfunctioning sootblower issue.

On January 24, at approximately 12:30, the mill and Surveillance Team worked together to isolate the sootblower system and analyze the acoustics. Acoustic levels across the system returned to normal limits with the exception of sensor 19. The signal showed an approximate

3dB decrease with the sootblowers isolated while showing increased energy in the typical tube leak Spectrum Energy Distribution bandwidths. With the new information in hand, the mill investigated the area in detail. At approximately 13:30, the mill discovered evidence of a tube leak. Soon after, management made the decision to bring the unit down for repairs in a controlled fashion.

Once down for repairs, the leak was discovered to be a 1/2" radial crack approximately 3/4" from the upper header, on the 1st tube by the wall. The unit was able to return to normal operations two days later. Other than the acoustics, the mill had no indications that the leak was present. The AMS was able to trend the development of the cracked tube over the course of ~20 days that would have otherwise been attributed to a sootblower malfunction. The cooperation between the mill staff and the AMS Surveillance team also contributed to the uncovering of the leak, preventing collateral damage and a potential forced outage that a masked tube leak can cause.

Problem: Tube Leak
Boiler: Recovery Boiler
Equipment: 30 Metalborne Waveguides



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