

UP Boiler Downcomer Strainers

Purpose

Advise customers to inspect for deterioration of downcomer strainer baskets.

Background

Early B&W UP boilers, with furnace wall tubes of 1" O.D. or less, or which are cyclone fired, experienced some tube failures due to debris from the feed-water cycle entering the boiler and causing internal flow restrictions. To avoid this problem, B&W developed a downcomer bottle strainer (see Figure 1) for installation in the following types of UP boilers in the locations specified:

1. In all cyclone fired boilers, in the downcomer bottle immediately preceding the cyclone circuits. See Figure 2.
2. Boilers with furnace tube O.D. of 1" or less, in the

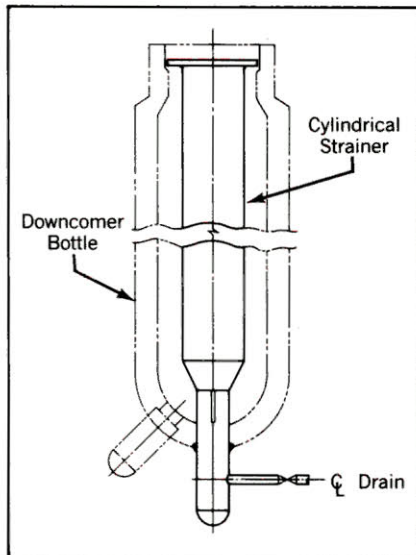


Figure 1 Downcomer Strainer

downcomer bottles immediately preceding the first furnace pass. See Figure 3.

Problem

Recent inspections have revealed damage to the basket strainers. The strainers can break into several pieces due to corrosion or fatigue. Pieces of the strainers, as well as other debris, can then pass through the broken strainer and block cyclone or furnace wall tubes.

When circulation in these tubes is restricted, tube failure, as a result of overheating can occur.

Recommendations

All such strainers should be inspected annually via a hand-hole cap or drain connection, using a fiberoptic probe or a chip camera. If the strainer has failed and all the pieces cannot be totally accounted for, the cyclone inlet headers or the

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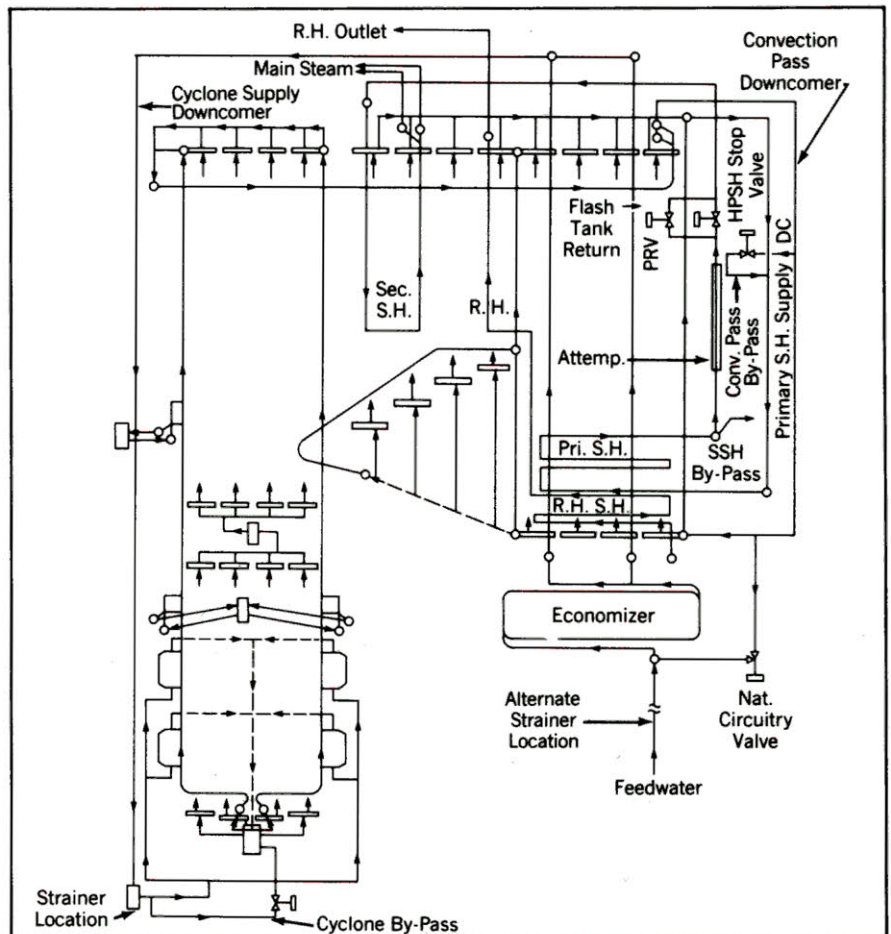


Figure 2 Boiler Circuitry of a Cyclone Unit.

furnace first pass inlet headers should be opened and inspected for debris.

All debris should be removed and the failed strainer replaced.

An alternative for replacing the existing downcomer strainer is to install a strainer at the economizer inlet. If the alternate location is used, the failed strainer must be removed from the downcomer and all the debris accounted for. See Figure 2 for location.

Support

If you have any questions or need assistance in making this inspection, please contact Babcock & Wilcox Field Service Engineering.

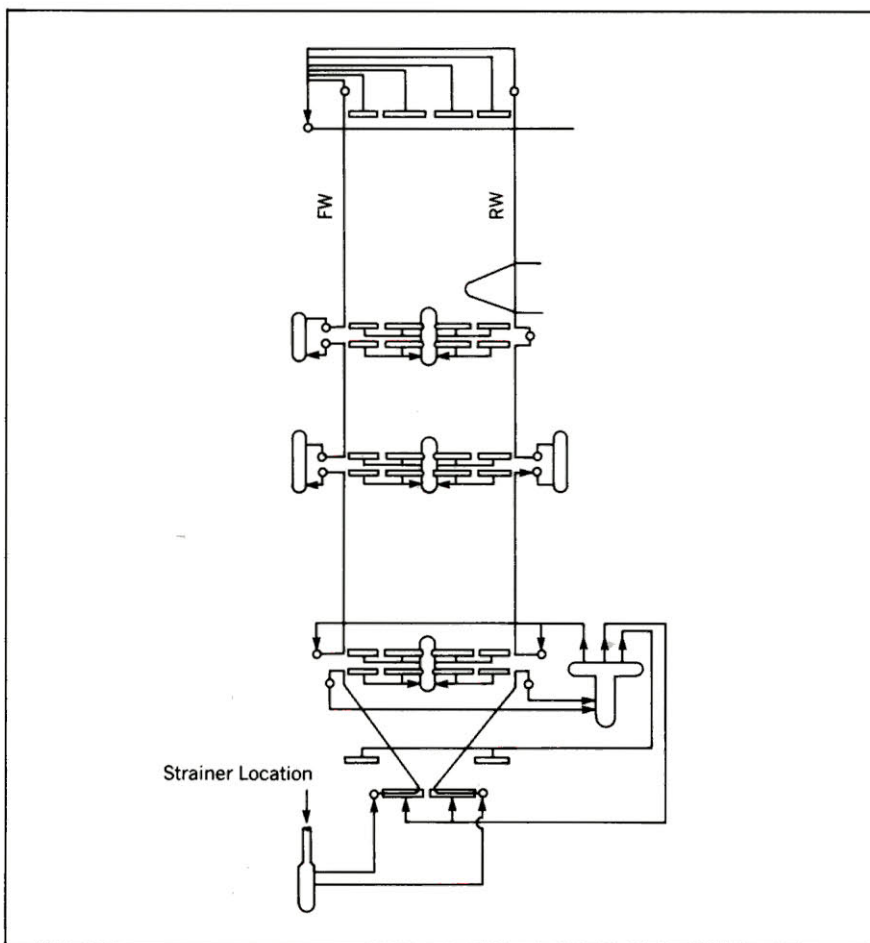


Figure 3 Typical UP Boiler Circuitry

For more information, contact your nearest B&W sales office or write: Dept. CIC, Power Generation Group, Babcock & Wilcox, Barberton, Ohio 44203, U.S.A.; or, in Canada, Manager, Marketing and Sales, B&W Canada, Cambridge, Ontario, N1R 5V3.

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