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Eschweiler, 27.04.1995

## Experience Report WLB30 Weisweiler

### 1. Cleaning with Waterblowers, SK 58 E

In the two brown coal-fired boilers G and H (1805 t/h) waterblowers type SK 58 E, of Messrs. Bergemann have been installed since the commissioning in 1975.

- side length of the combustion chamber 20.8 x 20.8 m
- helical coiling of the wall tubes approx. 19°
- tube diameter 31.8 x 4.5, spacing 50 mm (above 24 m)
- material 15 Mo 3 = 1.5415
- membrane wall tube/membrane bar/tube

First, 56 pcs. of SK 58 E were installed per boiler. Due to increasing fouling more than 100 SK 58 E per boiler were installed up to now. During commissioning of boiler G in 1975 temperature measurements on clean boiler walls were carried out with thermocouples within the range of action of a SK 58 E in Weisweiler Power Plant.

Approximately 30 thermocouples were fixed in the membrane bars between the wall tubes. In total three blowing nozzles of different sizes were tested. Blowing pressure before the blowing nozzles 12 bar maximum.

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## Annex 3b

### Water Lance Blowers

are complete devices which can be permanently installed on a boiler as accessory unit.

The boiler is cleaned with a concentrated water jet highly bundled by a high-capacity nozzle which is directed through the furnace at the opposite wall. Due to the movement of the blowing lance the water jet describes a meander-shaped pattern on the heating surface to be cleaned. A microelectronic control allows to describe blowing patterns adjusted to the respective boiler. The horizontal and vertical slewing range of the blowing lance allows to cover large surfaces.

The design of the WLB is based on examinations of the thermal shock stresses on the pipe system and ensures that allowable stresses are not exceeded.

### The Advantages

of this cleaning method are as follows:



- good cleaning effect on the whole furnace heating surface
- cleaning of a surface of up to 200 m<sup>2</sup> per WLB. Therefore, only very few devices are required per boiler and thus the overall investment costs and the maintenance expenses are lower compared with boiler cleaning devices use up to now
- improvement of the energetic conversion efficiency in steam boilers, saving of coal
- prevention of insufficient outputs of a boiler due to slag and/or damage to the pipe and ash handling system due to large slag lumps falling down
- prevention of time-consuming and physically exacting cleaning involving a large amount of equipment during boiler downtime.

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3. Summary

Cleaning effect and availability of WLB 30 are good. Taking into account the fouling conditions, the cleaning with water blowers does not have any negative influence on the evaporator walls.

Kind regards,



Enclosures:

1. Technical Data of the WLB 30 Weisweiler
2. Survey Evaporator Wall, SK 58 E taken out of Operation
3. General Information Sheet WLB 30
4. Survey Blowing Patterns