**Practical experience with the action level system**

The VGB-Standard 010 “Feed Water, Boiler Water and Steam Quality for Power Plants/ Industrial Plants” supports the operator of water-steam cycles in power plants and related branches in selecting and judging suitable water regimes with respect to a safe and economically sound operation of the power plant for a long period of time. This guidance does not deliver absolute limiting values of chemical parameters but demonstrates permissible operation ranges to achieve minimal corrosion within the water-steam cycle and to reach an optimised lifetime of the plant by implementation of an action level (AL) control system.

It is the aim of this system to avoid the shut-down requirement as long as there is any realistic chance to eliminate the source of trouble and it is based on specifications of normal operating values and 3 action levels for concentrations of chemical species. The operating range below AL1 is divided into the N-range with optimal conditions and a range between N and AL1 with acceptable conditions. The N-range will vary from plant to plant depending on the plant age and state, possibilities to clean the water-steam circuit (e. g. condensate polishing) and operating conditions (base- or peak load).

VGB is now revising the guidance and would like to get more knowledge about the experience with the action level control system for base- and peak-load plants as well as for cycling operation and grid reserve plants. Therefore, we would like to ask you to fill in the following questionnaire and send back to: andreas.wecker@vgb.org .

|  |  |  |  |
| --- | --- | --- | --- |
| **Plant** |  |  |  |
| **Boiler type** |  |  |  |
| **Load** |  |  |  |
| **Chemical Treatment** |  |  |  |
| **ALS** |  |  |  |
| **DCS** |  |  |  |
|  |  |  |  |
| **Max acceptable conditions** | **Feed Water** | **Boiler Water** | **Steam** |
| pH |  |  |  |
| Acid Conductivity  |  |  |  |
| Conductivity  |  |  |  |
| Oxygen (O2) |  |  |  |
| Silica (SiO2) |  |  |  |
| Iron (Fe), total |  |  |  |
| Copper (Cu), total |  |  |  |
| Sodium (Na) |  |  |  |
| Organics |  |  |  |

**Plant:** Power plant, industrial plant

**Boiler type**: Once-through, Drum, Heat recovery steam generator (HRSG), Fire tube boiler, other

**Load:** Base-, peak-load, cycle operation, grid reserve…

**Chemical treatment:** AVT - OT (dosing of oxygen)
 O (without oxygen scavenger)
 R (with oxygen scavenger)
 C (conditioning only with oxidizing agents)

Solids - CT, caustic treatment with NaOH
PT, phosphate treatment with Na3PO4
Other (e. g. LiOH, Na2HPO4, …)

Amines - Alkalizing amines
 Film forming amines

**Action Level System (ALS):** AL-System of VGB-S-010 (N – AL3)
 No Al-System
 Other AL-System (where do the limits come from?)

**Alarm Levels in the DCS:** What kind of alarm levels are set in the Distributed Control
System?
Who takes or took care of this setup?