VGB PowerTech e.V.

The European technical association for power and heat generation
Workshop in India, March 2013
VGB is a voluntary association of companies, for which power plant operation and the appropriate technology are an important basis of their business. Our goal is to promote and optimise

- the operational safety and environmental compatibility
- availability and economic efficiency

of existing plants and plants to be constructed for power and heat generation.
European technical association for power and heat generation

- We are dealing with all questions regarding power and heat generation

- Nuclear Power Plants
- Power Plants Technologies
- Renewables, Distributed Generation
- Environmental Technology, Chemistry, Safety and Health
- Technical Services
VGB represents ~ 530,000 MW installed power capacity
European VGB Committees

Technical Advisory Board
Chairman: Dr. Giger
Steering Group Europe

Board of Directors
Chairman: Prof. Dr. Jäger

Scientific Advisory Board
Chairman: Dr. Lambertz

VGB-Secretariat
Executive Managing Director: Erland Christensen

ETC
Generation and Technology

TC
Power Plants Concepts

EWG
Performance Indicators

EWG
Maintenance Optimisation Network

EWG
Flue Gas Cleaning\(^1\)

Workshop Gas Turbines\(^2\)

Workshop Fluidised Bed Combustion\(^2\)

SC
Emax-Technology

EWG
Carbon Capture & Storage

COMTES 700\(^3\)

PP 700 Study\(^3\)

SC
Hydro

TC
Hydro Power Plants

ETC
Use of Renewables & Distributed Generation

EWG
Wind Energy

EWG
Biomass

EWG
Biogas

EWG
Distributed Generation

ETC
Environment

EWG
Emission Monitoring

EWG
E-PRTR

ETC
Safety & Health at Work

ETC
Chemistry

EWG
Carbon Capture & Storage

EWG
Performance Indicators

EWG
Maintenance Optimisation Network

EWG
Flue Gas Cleaning\(^1\)

EWG
Hydro Power Plants

EWG
Wind Energy

EWG
Biomass

EWG
Biogas

EWG
Distributed Generation

1) also reporting to ETC Environment

2) Annual workshops on special invitation

3) Research project
Activities

1. Concentration of technical expertise and services for our member companies in the areas of:
   - Power plant technology
   - Power plant operation
   - Environmental and preventive climate protection
   - Plant and maintenance management

2. Collaboration in the preparation of European and national standards and other technical regulations

3. Preparation of VGB standards (unofficial regulations)

4. Initiation and co-ordination of R&D projects and actions (VGB RESEARCH FOUNDATION)

5. Operational services in the areas of:
   - Technical consulting
   - Damage analyses and chemical tests and analyses
   - Construction and assembly supervision and quality assurance
   - Power plant indicators/damage statistics

6. Preparation of rules for initial and further training of power plant staff (at power plant training centre KWS and/or nuclear simulator centre KSG/GfS)

7. Technical information work for all types of generation
The VGB Group

KWS Power Plant Training Centre
- Training and advanced training of power plant operators for coal-, gas- and hydro power as well as waste incineration plants

KSG/GfS Simulator Centre
- Training and advanced training of nuclear power plant operators

VGB RESEARCH FOUNDATION
- Organisation/administration of R&D projects
- Fund raising of national and European subsidies

VGB PowerTech Service GmbH
- Monthly “PowerTech” magazine
- Production, printing, distribution of technical guidelines, instruction sheets, manuals etc.
http://www.vgb.org
Documentation of best practices, expertise and lessons learnt

- not binding
- proven industry standard
- 324 guidelines and instruction sheets

Who prepares the guideline?

core group of experts (~15 persons)
3 important features to create a guideline

1. set-up the core group and develop the initial Paper
2. several meetings with dedicated tasks for each expert
3. VGB person co-ordinates the process and prepares consolidated draft(s)

Time frame: 6 … 12 months

Revision of a guideline if the technical status is out of date – approx. 10 to 20 years
Principle Structure of a guideline

- **Who**

- **Introduction** (technical basics and scientific fundamentals)

- **Technical details** and recommendations (80 % of the guideline)

- **Literature and publications** (mainly articles in technical press)

- Related **standards and norms** (ASME, ISO, VdTÜV, DIN etc.)

VGB guidelines / instruction sheets are liable to pay costs;

the average price is ~ 100 Euro (7.100 INR)
Wet preservation methods for steam generators

**Table 4: Treatment of condenser tubes made of copper**

<table>
<thead>
<tr>
<th>Boundary conditions</th>
<th>Duration of outage</th>
<th>Keeps condenser filled with cooling water</th>
<th>Additionally</th>
<th>Feedwater quality to VGB Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>No isolating valve provided, tubes are fitted</td>
<td>1 bis 3 Tage</td>
<td>Keep condenser filled with cooling water</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>&gt; 3 Tage</td>
<td>additionally operate cooling water system every 3 days</td>
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<tr>
<td></td>
<td></td>
<td>cooling water with a chloride content of &gt; 600 mg/l</td>
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<tr>
<td></td>
<td></td>
<td>cooling water with a chloride content of &lt; 600 mg/l</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>additional: - operate cooling water system every 3 days or, alternatively: - drain, flush, re-fill</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>condenser 1 and keep filled by means of level pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- drain, flush, dry, keep dry condenser</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>cooling water with a chloride content of &gt; 600 mg/l</td>
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<tr>
<td></td>
<td></td>
<td>drain, clean and refill condenser with cooling water</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>drain condenser, clean, if fitted</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>additionally dry and keep dry condenser</td>
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</tr>
</tbody>
</table>

1 Detorbed water or potable water with low salt content shall be used.

**Figure 1: Oxygen corrosion**

Resin embedment

Water side

No protective function due to exfoliated structure of magnetic layer (active condition)
Thank you for your interest!
Contact

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