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Abstracts

John P. Dimmer, R. Barry Dooley, and Lewis J. Rubin
EPRI's BTFR/CCI Program Provides Tremendous Benefits to Utilities

EPRI's Boiler Tube Failure Reduction/Cycle Chemistry Improvement (BTFR/CCI) Program began in 1985. Over the last six years more than 65 organizations around the world have implemented and/or received training in this program. The organizations range in size from single plants to 40 000 MW systems. Tremendous benefits have resulted for utilities that have implemented the program for two years or more. Cost savings have ranged as high as $60,000,000/year. This paper briefly describes the program implementation strategy, methodologies used to benchmark participating utility performance in both BTFR and CCI, and the results from five utilities, ranging in size from 1 200 to 34 000 MW, that have implemented the program for two years or more.

Greg Bartley and Rob Taylor
Off-Site Condensate Resin Regeneration by Service Contract – An Operating Experience Update

Operating experiences from off-site condensate polishing resin regeneration at four fossil stations are shared. Employing this service improved cycle chemistry, lowered and improved management of treatment costs, eliminated lost generation from acid and caustic ingress, and eliminated hazardous regenerant chemicals from the sites. The overall operating cost for this service ranged between $812 and $1,024 per m^3 ($23 and $29 per cubic foot) for 2001 and 2002. Off-site regeneration also provides the unique capability to adjust resin ratios at each regeneration to optimize polisher performance based on cycle chemistry.

The Engineers' Society of Western Pennsylvania 64th Annual International Water Conference

Conference program (technical sessions only) – abstracts of all the papers and reports.

Daniel Meils
Power Plant Chemistry QA/QC – A Practical Application

Fossil power plant laboratory chemistry Quality Assurance/Quality Control (QA/QC) programs have historically been a low priority for many end-users. A trained chemistry staff, it was thought, should be able to determine when things were going wrong, and plant design margins allowed a lot of forgiveness when upset conditions occurred. However, in today's downsized, competitive, reliability-driven workplace, QA/QC takes on new importance. Downsizing initiatives have reduced the number of experienced personnel and new plant designs are not as forgiving. As the industry adapts to the new paradigm, some plants are relying more on installed on-line instruments and using fewer skilled workers to perform chemistry analysis. At some plants, on-line instruments provide real-time

information to data acquisition systems and expert advisor systems in an attempt to replace qualified personnel. At other plants, untrained operators make their round recording chemistry data from outdated instruments that may not have been calibrated in years. In any case, it is imperative to have confidence in the data used to make operational decisions. Under our new operating paradigm, practical power plant chemistry QA/QC programs become an essential part of everyday operation.

Branko Stanisa and Loreta Pomenić
Stress Corrosion Cracking in a 664 MW Low-Pressure Turbine – A Case Study

The most significant crack growth mechanism in low-pressure shrunk-on disk keyway cracking has been identified as stress corrosion cracking. This is one of the most dangerous kinds of corrosion processes which may occur during the operation of steam condensing turbines with shrunk-on disks on the turbine shaft. Stress corrosion of the turbine shrunk-on disks may cause disk fracturing and severe turbine damage. In this paper the basic technical data, a description of a 664 MW steam turbine in a nuclear power plant and the causes of stress corrosion crack growth in the turbine shrunk-on disks are presented. The relation between the crack propagation of the longest stress corrosion crack found in the keyway of the second disk in the low-pressure turbine LP1 (generator side) and the turbine operating hours is presented.

Eric Maughana und Hans-Dieter Pflug
Planung und Betrieb eines zeitgemäßen Probenahme- und Analysensystems zur Online-Überwachung von Wasserdampfkreisläufen

Probenahme und kontinuierliche Überwachung erscheinen heute in einem anderen Licht als in den 1970er Jahren. Damals ging der Trend dahin, das Kraftwerk mit Online-Analysatoren für die Überwachung von Wasserdampfkreisläufen verschwenderisch auszustatten. Als sich jedoch wirtschaftliche Einsichten, insbesondere im Hinblick auf eine Verminderung der Personalstärke, immer mehr durchsetzten, war ein aufwendiger analytischer Gerätepark nicht mehr wünschenswert. Heute versucht man, mit einem Minimum an Überwachungseinrichtungen auszukommen. Dafür wird bei Probenahme und Messung ein größeres Gewicht gelegt auf Festlegung und Einhaltung von Qualitätsstandards. Der Anwender soll die für sein Medium geltenden Spezifikationen kennen und danach die passenden Geräte auswählen. Zusätzliche Kriterien sind hierbei zu beachten:

- Bedienungsfreundlichkeit
- Zuverlässigkeit
- Geringer Wartungsaufwand

Die vorliegende Arbeit setzt sich auseinander mit dem Dilemma, dass einerseits die Anforderungen an die Reinheit des Betriebsmediums Wasser-Dampf eingehalten werden müssen, sich andererseits jedoch der notwendige Überwachungsaufwand auch nach den wirtschaftlichen Möglichkeiten richten soll.

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