

Portable XRF in Predictive Modeling for Flow-Accelerated Corrosion

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Flow-accelerated corrosion (FAC) poses a persistent challenge in power plant operations, particularly in heat recovery steam generators (HRSGs). As a critical component of combined-cycle power plants, HRSGs are subjected to high-velocity water flows that can lead to FAC-induced degradation over time. Integrating leading-edge inspection technologies can address this issue proactively. This presentation delves into the application of portable X-ray fluorescence (pXRF) spectrometry as an essential tool within the realm of predictive modeling for FAC in HRSGs. Because of its nondestructive, real-time analysis capabilities, pXRF presents a modern approach to FAC prediction. This presentation explores the nuanced interaction between water chemistry, materials, and FAC, highlighting the role of pXRF in quantifying elemental compositions and identifying localized corrosion susceptibility. Through case studies and practical insights, attendees will gain a comprehensive understanding of how pXRF augments predictive modeling by enabling accurate corrosion risk assessments, facilitating proactive maintenance, and optimizing operational strategies. The synergy between pXRF technology and predictive modeling holds the potential to revolutionize FAC management by enhancing HRSG performance, longevity, and overall plant efficiency. Attendees will gain actionable insights on how to implement pXRF within their operations, harness its potential to mitigate FAC, and elevate their heat recovery steam generators reliability into the future.