

## **Early Hydrogen Water Chemistry Project Review, Improvement Opportunities and Conceptual Design Options at Exelon Boiling Water Reactors**

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### **ABSTRACT**

Intergranular Stress Corrosion Cracking (IGSCC) and its impacts have been a major concern to the BWR fleet since the mid-70's. Several alternative strategies have been employed to reduce the negative impacts, however, the newest being Early Hydrogen Water Chemistry (EHWC). The Electric Power Research Institute (EPRI) and the BWRVIP (Vessel Internals Project) has strongly supported the development of EHWC, including laboratory testing and a demonstration program that was performed at Peach Bottom Atomic Power Station in October 2011. This paper will review the impacts of a "Special Test Program" on a BWR plant including: Project management findings; technical reviews and documents required to support such a demonstration program; temporary equipment design, installation and testing; keeping the demonstration progressing along with the plant return from a refuel outage; and lessons learned that can be applied to EHWC implementation during future startups. Details will be compared between various Exelon BWRs in support of conceptual designs for EHWC systems and operation. Some comparisons on operational impacts will be provided between various types of BWR plants with differing "Balance of Plant" designs.