

RS-07-108

August 3, 2007

Mr. James E. Dyer  
Director, Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Braidwood Station, Unit 2  
Facility Operating License No. NPF-77  
NRC Docket No. STN 50-457

Subject: Mitigation of Alloy 600/82/182 Pressurizer Butt Welds in 2008

- References:
- (1) Letter from T. S. O'Neill (Exelon Generation Company, LLC) to U. S. NRC, "Supplemental Response Regarding Inspection and Mitigation of Alloy 600/82/182 Pressurizer Butt Welds," dated February 21, 2007
  - (2) Letter from J. E. Dyer (U. S. NRC) to C. M. Crane (Exelon Generation Company, LLC), "Confirmatory Action Letter - Braidwood Station, Units 1 and 2 (TAC Nos. MD4134 and MD4135)," dated March 22, 2007
  - (3) Electric Power Research Institute Final Report 1015383, "Advanced FEA Evaluation of Growth of Postulated Circumferential PWSCC Flaws in Pressurizer Nozzle Dissimilar Metal Welds, (MRP-216): Evaluations Specific to Nine Subject Plants, dated July 31, 2007
  - (4) A. Marion (Nuclear Energy Institute) Letter to L. Reyes (U. S. NRC), "Transmittal of EPRI Report 'Advanced FEA Evaluation of Growth of Postulated Circumferential PWSCC Flaws in Pressurizer Nozzle Dissimilar Metal Welds, (MRP-216): Evaluations Specific to Nine Subject Plants, Final Report,'" dated August 1, 2007

In the Reference 1 submittal, Exelon Generation Company, LLC (EGC) provided the plans and schedule for the mitigation of pressurizer Alloy 82/182 butt welds for Braidwood Station Unit 2. In that submittal, EGC stated that, based on the current refueling outage schedule, Braidwood Station Unit 2 would complete the mitigation action in the spring of 2008 (i.e., beyond the industry-sponsored Materials Reliability Program (MRP) 139 schedule of December 31, 2007).

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Reference 1 also provided regulatory commitments regarding the Braidwood Station (Units 1 and 2) schedule for mitigation actions, enhanced Reactor Coolant System leakage monitoring, and inspection reporting requirements. Also, specific to Braidwood Station Unit 2, a commitment was made to adopt contingency plans to shut down by December 31, 2007 to perform weld overlays, if technical information, being developed by EPRI through advanced finite element analyses, does not provide reasonable assurance to the NRC that primary water stress corrosion cracking (PWSCC) conditions will remain stable and not lead to rupture without significant time from the onset of detectable leakage. These regulatory commitments were confirmed in the Reference 2 Confirmatory Action Letter (CAL).

EPRI's advanced finite element analysis, Reference 3, was recently completed and submitted by Reference 4. The analysis, which is applicable to Braidwood Station Unit 2, assumed the existence of large circumferential cracks in all the analyzed locations. This assumption is very conservative considering field inspections and experience that has shown a relatively low number of PWSCC indications in these components. With this conservatism, the analysis concluded that there is significant time for crack growth between the onset of detectable leakage and development of critical flaw size.

This letter confirms that the Reference 3 EPRI Advanced Finite Element Analysis report bounds the Braidwood Station Unit 2 pressurizer Alloy 82/182 welded pipe/nozzle components. EGC has reviewed the report and verified that the input addresses Braidwood Station Unit 2 weld configurations and loads, that the analysis and conclusions are applicable to Braidwood Station Unit 2 design, and that all welds representative of Braidwood Station Unit 2 are adequately addressed by the crack growth analyses and associated sensitivity cases. Finally, the analytical results applicable to Braidwood Station Unit 2 satisfy the leakage evaluation criteria presented in the report.

Therefore, EGC is confident that the analytical results presented in Reference 3, and the current plant enhanced leakage monitoring program, provide a reasonable and adequate basis for performing mitigation or inspection activities during the scheduled refueling outages in spring of 2008 as committed to in Reference 1, after which time Braidwood Station Unit 2 will fully satisfy the MRP-139 inspection/mitigation requirements for pressurizer Alloy 600/82/182 components.

There are no additional regulatory commitments contained in this response. If you have any questions concerning this submittal, please contact Mr. David Chrzanowski at (630) 657-2816.

Respectfully,



Darin M. Benyak  
Director – Licensing and Regulatory Affairs