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RS-07-027
5928-07-20044

February 21, 2007

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Unit 2
Facility Operating License No. NPF-66
NRC Docket No. STN 50-455

Three Mile Island Nuclear Station, Unit No. 1
Facility Operating License No. DPR-50
NRC Docket No. 50-289

Subject: Supplemental Response Regarding Inspection and Mitigation of Alloy 600/82/182 Pressurizer Butt Welds

Reference: Letter from T. S. O'Neill (Exelon Generation Company, LLC and AmerGen Energy Company, LLC) to U. S. NRC, "Inspection and Mitigation of Alloy 600/82/182 Pressurizer Butt Welds," dated January 30, 2007

In the referenced submittal, Exelon Generation Company, LLC (EGC) and AmerGen Energy Company, LLC (AmerGen), provided details on ongoing actions and commitments regarding the inspection and mitigation activities for the reactor coolant system (RCS) Alloy 600/82/182 pressurizer components for Braidwood Station Units 1 and 2, Byron Station Units 1 and 2, and Three Mile Island Nuclear Station Unit 1 (TMI Unit 1).

In a February 13, 2007, teleconference between representatives of the NRC, EGC and AmerGen, the NRC requested that the referenced submittal be supplemented to include commitments to several near-term actions for all EGC and AmerGen pressurized water reactors that have not effectively inspected or mitigated the Alloy 600/82/182 pressurizer nozzle connections. The affected units are Braidwood Station Units 1 and 2, Byron Station Unit 2, and TMI Unit 1. The Alloy 600/82/182 pressurizer connections affected by these commitments and near-term actions were provided in the referenced letter and are also listed in Attachment 1 of this letter.

The commitments include the adoption of enhanced unidentified RCS leakage monitoring requirements and actions and a requirement for Braidwood Station Unit 2 to develop contingency plans for a shutdown in 2007.

The details of each site's commitments are provided in the attachments to this letter. This listing provides new commitments originating from the February 13, 2007, teleconference. These new commitments replace, in their entirety, those commitments provided in the referenced letter. A verbal agreement to provide this supplemental response was discussed on February 15, 2007, with the NRC Project Manager for Braidwood Station and the NRC Senior Project Manager for EGC-AmerGen fleet issues.

The previous commitment for a description of an enhanced unidentified RCS leakage monitoring program for Braidwood Station Unit 2 to be provided to the NRC by March 31, 2007 is superceded by the new commitment to adopt this program by February 28, 2007. The previous commitment to perform a bare metal visual (BMV) examination of Alloy 600/82/182 pressurizer nozzle connections at Braidwood Station and TMI Unit 1 in the event of a forced shutdown due to exceeding the Technical Specification limits for unidentified RCS leakage has been subsumed by the new commitments to perform the BMV examinations whenever a shutdown is required by the new unidentified RCS leakage action levels. This new commitment now includes Byron Station Unit 2.

TMI Unit 1 will revert to their standard, daily RCS leakage monitoring program but without the enhanced shutdown action levels (i.e., ≥0.10 gallons-per-minute (gpm) day-to-day or ≥0.25 gpm above baseline change) after the scheduled Fall 2007 refueling outage. This is based on successful mitigation or volumetric examination of the pressurizer spray, pressurizer relief, and pressurizer surge nozzle Alloy 600/82/182 penetrations. The mitigation will be completed using primary water stress corrosion cracking resistant materials. The examination will be performed using PDI qualified UT examination techniques in accordance with MRP-139 requirements.

The commitment to provide a description, by May 31, 2007, of any additional leakage diagnostic capabilities that could be installed at Braidwood Station Unit 2 has been replaced by a new commitment to develop 2007 shutdown and inspection or mitigation plans for Unit 2. However; if the NRC agrees that the results of the Materials Reliability Project sponsored refined crack growth project provide reasonable assurance that primary water stress corrosion crack-conditions will remain stable and that there is a reasonable timeframe between leakage and rupture, this commitment would be considered complete and Braidwood Station Unit 2 would continue with mitigation plans in the Spring 2008 refueling outage.

The elements of the enhanced unidentified RCS leakage monitoring programs will be in place at each site by February 28, 2007, and controlled by site-specific Operating Department procedures. The enhanced unidentified RCS leakage action levels are: ≥0.10 gpm day-to-day or ≥0.25 gpm above baseline change. The new actions include the requirement to place the unit in Mode 3 within 6 hours, Mode 5 within 36 additional hours and perform a BMV of unmitigated or uninspected Alloy 600/82/182 nozzles if the elevated leak rate is sustained for 72 hours. The 72 hour evaluation period will begin at the time that the increase above the limit(s) is identified.

The 72 hour required evaluation and subsequent shutdown timeclocks, that are initiated by exceeding the ≥0.10 gpm and/or the ≥0.25 gpm unidentified RCS leakage levels, can be exited if a positive determination can be established that the pressurizer is not the source of the unidentified RCS leakage or if a quantity of leakage can be assigned to a source other than the pressurizer and that quantity drops the unidentified RCS leakage below the appropriate threshold(s). If a post-shutdown inspection identifies the source of the unidentified RCS leakage to originate from a source other than the pressurizer, a pressurizer BMV would not be performed.

In addition, the frequency of Braidwood Station and Byron Station Unit 2 Operating surveillances will be changed to ensure that the leak rates are performed on a daily basis instead of the Technical Specification (TS) required 72 hour frequency.

Several clarifications of the enhanced unidentified RCS leakage monitoring program and action levels were provided by the NRC during the February 13, 2007 teleconference. Specifically, regarding the leak rate baseline, the NRC verbal guidance is to establish a baseline unidentified RCS leakage, using only positive values, obtained during a 7 day, 100% power, Mode 1 operational run following the outage in which the last pressurizer BMV inspection was performed.

However, if established unidentified RCS leakage baselines, calculated after restart from an outage in which the last pressurizer BMV inspection was performed, are equivalent or currently more conservative than that provided by NRC guidance – the lower established baseline value will be maintained.

Byron Station Unit 2 will be adopting the enhanced unidentified RCS leakage monitoring requirements by February 28, 2007; however, the unit will be entering a power coast down in March in preparation for the 13th refueling outage beginning April 2, 2007. During March, associated plant evolutions (i.e., boron dilution, power reduction, Main Steam safety valve testing, Auxiliary Feedwater system testing, etc) will cause unstable plant conditions and affect the leak rate value. As stated in the Byron Station TS Bases regarding RCS leak rate testing:

> *Steady state operation is required to perform a proper inventory balance since calculations during maneuvering are not useful. For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure (≥ 2150 psig), temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.*

Because of changing plant conditions which may occur at Byron Station Unit 2, as well as, Braidwood Station Units 1 and 2 and TMI Unit 1, certain daily RCS leakage values may not accurately represent unidentified RCS leakage; therefore, anomalous unidentified RCS leakage values, clearly attributable to a specific plant event or condition, would not initiate the 72 hour evaluation-shutdown timeclock. Rather, additional leakage measurements would be taken when plant conditions stabilize.

The details of the reactor coolant system enhanced unidentified RCS leakage evaluations will be documented in the corrective action program. These evaluations would describe the basis for entering, evaluating, exiting 72 hour timeclocks as well as the basis for a required unit shutdown. Any follow-up inspection results and/or descriptions of mitigative actions would be provided to the NRC within 60 days of completion of those activities as described in the attached commitments.

As agreed to in the February 13, 2007 teleconference, EGC does not intend to modify the RCS leakage monitoring program or to impose any additional BMV requirements at Byron Station Unit 1 since all Alloy 82/182 pressurizer connections were fully mitigated in the Fall of 2006.

If you have any questions concerning this submittal, please contact Mr. David Chrzanowski at (630) 657-2816.

Respectfully,

Thomas S. O'Neill
Vice President – Regulatory Affairs
Exelon Generation Company, LLC
AmerGen Energy Company, LLC

Attachment 1: Listing of Pressurizer Connections Subject to Commitments

Attachment 2: EGC Commitments for Braidwood Station, Units 1 and 2 - Alloy 600/82/182 Program Enhancements

Attachment 3: EGC Commitments for Byron Station Unit 2 - Alloy 600/82/182 Program Enhancements

Attachment 4: AmerGen Commitments for Three Mile Island Nuclear Station, Unit 1 - Alloy 600/82/182 Program Enhancements

Attachment 1
Exelon Generation Company, LLC (EGC)
AmerGen Energy Company, LLC (AmerGen)

Listing of Pressurizer Connections Subject to Commitments

Site	Pressurizer Connection Listing	Number
Braidwood Station Unit 1	6-inch safety valve nozzles	3
	6-inch pressure relief nozzles	1
	4-inch spray nozzle	1
	14-inch surge nozzle	1
	Total Affected Connections	6
Braidwood Station Unit 2	6-inch safety valve nozzles	3
	6-inch pressure relief nozzles	1
	4-inch spray nozzle	1
	14-inch surge nozzle	1
	Total Affected Connections	6
Byron Station Unit 2	6-inch safety valve nozzles	3
	6-inch pressure relief nozzles	1
	4-inch spray nozzle	1
	14-inch surge nozzle	1
	Total Affected Connections	6
TMI Unit 1	2 ½ -inch pressure relief nozzles	3
	4-inch spray nozzle *	1
	10-inch surge nozzle	1
	Total Affected Connections	5

* The TMI Unit 1 spray nozzle has two Alloy 600/82/182 butt welds

Attachment 2
Exelon Generation Company, LLC (EGC)

Braidwood Station Unit 1 and 2

List of Commitments
Alloy 600/82/182 Program Enhancements

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC ACTION (Yes/No)
Braidwood Station Unit 1 will adopt enhanced unidentified RCS leakage monitoring requirements. These unidentified RCS leakage monitoring enhancements include: Daily measurement of unidentified RCS leakage Incorporation of two new action levels for the following unidentified RCS leakage scenarios: • a ≥0.10 gpm change from one day to the next, sustained for 72 hours with at least 0.10 gpm not confirmed from sources other than pressurizer nozzle welds. • a ≥0.25 gpm above a baseline sustained for 72 hours with at least 0.25 gpm not confirmed from sources other than the pressurizer nozzle welds Once the 72 hour evaluation period is complete, and the leakrate is still elevated, Braidwood Station Unit 1 will be placed in MODE 3 within 6 hours and in MODE 5 within 36 additional hours and a bare metal visual inspection of unmitigated Alloy 82/182 pressurizer nozzles will be performed.	February 28, 2007	No	Yes *
Reports of any Alloy 82/182 pressurizer nozzle connections inspection results for Braidwood Station Unit 1 will be submitted to the NRC within 60 days of the completion date of the inspection	For all inspections performed after February 28, 2007	No	Yes *
* These commitment remain in effect until the Alloy 82/182 pressurizer connections at Braidwood Station Unit 1 are inspected or mitigated by the installation of full structural overlays in the Fall of 2007.			

Attachment 2
Exelon Generation Company, LLC (EGC)

Braidwood Station Unit 1 and 2

List of Commitments
Alloy 600/82/182 Program Enhancements

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC ACTION (Yes/No)
Braidwood Station Unit 2 will adopt enhanced unidentified RCS leakage monitoring requirements. These unidentified RCS leakage monitoring enhancements include: Daily measurement of unidentified RCS leakage Incorporation of two new action levels for the following unidentified RCS leakage scenarios: • a ≥0.10 gpm change from one day to the next, sustained for 72 hours with at least 0.10 gpm not confirmed from sources other than pressurizer nozzle welds. • a ≥0.25 gpm above a baseline sustained for 72 hours with at least 0.25 gpm not confirmed from sources other than the pressurizer nozzle welds Once the 72 hour evaluation period is complete, and the leakrate is still elevated, Braidwood Station Unit 2 will be placed in MODE 3 within 6 hours and in MODE 5 within 36 additional hours and a bare metal visual inspection of unmitigated Alloy 82/182 pressurizer nozzles will be performed.	February 28, 2007	No	Yes *
Reports of any Alloy 82/182 pressurizer nozzle connections inspection results for Braidwood Station Unit 2 will be submitted to the NRC within 60 days of the completion date of the inspection.	For all inspections performed after February 28, 2007	No	Yes *
Braidwood Station Unit 2 will develop contingency plans to shutdown in 2007 and perform mitigation.	In time to support a 2007 shutdown if required **	Yes	No

* These commitments remain in effect until the Alloy 82/182 pressurizer connections at Braidwood Station Unit 2 are mitigated or inspected.
** If the NRC agrees that the Materials Reliability Project sponsored refined crack growth project results provide reasonable assurance that there is sufficient time between leak and break, then the Braidwood Station Unit 2 contingency plans for shutdown and mitigation or inspection in 2007 may be considered complete.

Attachment 3
Exelon Generation Company, LLC (EGC)

Byron Station Unit 2

List of Commitments
Alloy 600/82/182 Program Enhancements

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC ACTION (Yes/No)
Byron Station Unit 2 will adopt enhanced unidentified leakage monitoring requirements. These unidentified RCS leakage monitoring enhancements include: Daily measurement of unidentified RCS leakage Incorporation of two new action levels for the following unidentified RCS leakage scenarios: • a ≥0.10 gpm change from one day to the next, sustained for 72 hours with at least 0.10 gpm not confirmed from sources other than pressurizer nozzle welds. • a ≥0.25 gpm above a baseline sustained for 72 hours with at least 0.25 gpm not confirmed from sources other than the pressurizer nozzle welds Once the 72 hour evaluation period is complete, and the leakrate is still elevated, Byron Station Unit 2 will be placed in MODE 3 within 6 hours and in MODE 5 within 36 additional hours and a bare metal visual inspection of unmitigated Alloy 82/182 pressurizer nozzles will be performed.	February 28, 2007	No	Yes *
Reports of any Alloy 82/182 pressurizer nozzle connections inspection results for Byron Station Unit 2 will be submitted to the NRC within 60 days of the completion date of the inspection.	For all inspections performed after February 28, 2007	No	Yes *
* These commitments remain in effect until the Alloy 82/182 pressurizer connections at Byron Station Unit 2 are mitigated in the Spring of 2007.			

Attachment 4
AmerGen Energy Company, LLC (AmerGen)

Three Mile Island Nuclear Station Unit 1

List of Commitments
Alloy 600/82/182 Program Enhancements

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC ACTION (Yes/No)
In addition to the current practice of daily measurement of unidentified RCS leakage, Three Mile Island Nuclear Station Unit 1 will incorporate two new action levels for the following unidentified RCS leakage scenarios: • a ≥0.10 gpm change from one day to the next, sustained for 72 hours with at least 0.10 gpm not confirmed from sources other than pressurizer nozzle welds. • a ≥0.25 gpm above a baseline sustained for 72 hours with at least 0.25 gpm not confirmed from sources other than the pressurizer nozzle welds Once the 72 hour evaluation period is complete, and the leakrate is still elevated, Three Mile Island Nuclear Station Unit 1 will be placed in MODE 3 within 6 hours and in MODE 5 within 36 additional hours and a bare metal visual inspection of unmitigated Alloy 600/82/182 pressurizer nozzles will be performed.	February 28, 2007	No	Yes *
Reports of any Alloy 600/82/182 pressurizer nozzle connections inspection results for Three Mile Island Nuclear Station Unit 1 will be submitted to the NRC within 60 days of the completion date of the inspection	For all inspections performed after February 28, 2007	No	Yes **

* This commitment remains in effect until the integrity of the Attachment 1 Alloy 600/82/182 pressurizer connections at Three Mile Island Nuclear Station Unit 1 is addressed by mitigation or qualified ultrasonic examination.

** This commitment remains in effect until all Alloy 600/82/182 pressurizer connections, listed in Attachment 1, at Three Mile Island Nuclear Station Unit 1 have been mitigated.

Attachment 4
AmerGen Energy Company, LLC (AmerGen)

Three Mile Island Nuclear Station Unit 1

List of Commitments
Alloy 600/82/182 Program Enhancements

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC ACTION (Yes/No)
The re-examination of the spray nozzle butt welds, using ultrasonic techniques, shall be performed within 4 years (as opposed to the MRP-139 requirements of within 5 years)	Outage T1R19	Yes ***	No
*** The exam will be performed if not mitigated prior to or during the T1R19 outage in Fall 2011.			