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November 21, 2001  
BW010121

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

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

Subject:    Submittal of Licensee Event Report Number 01-002-00, "Main Steam Isolation Valves  
                 Not Stroke Timed in Mode 3 as Required"

The enclosed Licensee Event Report (LER) is being submitted in accordance with 10 CFR  
50.73(a)(2)(iv), "Reportable Events". 10 CFR 50.73(a) requires an LER to be submitted within 60  
days after discovery of the event. Therefore, this report is being submitted by November 26, 2001.

Should you have any questions concerning this letter, please contact Amy Ferko, Regulatory  
Assurance Manager, at (815) 417-2699.

Respectfully,

  
James D. von Suskil  
Site Vice President  
Braidwood Station

Enclosure:    LER Number 01-002-00

cc:            Regional Administrator - Region III  
                 NRC Braidwood Senior Resident Inspector

JE22

Rec'd  
11/21/01

## LICENSEE EVENT REPORT (LER)

<b>1. FACILITY NAME</b> Braidwood, Unit 2	<b>2. DOCKET NUMBER</b> STN 05000457	<b>3. PAGE</b> 1 of 5
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**4. TITLE**  
Main Steam Isolation Valves Not Stroke Timed in Mode 3 as Required

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	26	2001		2001-002-00		11	26	2001	N/A	N/A
									N/A	N/A

<b>9. OPERATING MODE</b>	1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more)</b>								
<b>10. POWER LEVEL</b>	96	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)					
		<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)					
		<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 73.71(a)(4)					
		<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(5)					
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A				
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)						
		<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)						
		<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)						
		<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
		<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						

**12. LICENSEE CONTACT FOR THIS LER**

NAME Amy Ferko, Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) (815) 417-2699
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE					
YES (If yes, complete EXPECTED SUBMISSION DATE).				x	NO		MONTH	DAY	YEAR
							N/A	N/A	N/A

**16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)**  
 While reviewing the schedule and testing requirements for the Unit 1 Main Steam Isolation Valves (MSIV) while in refueling outage A1R09, it was identified that Braidwood Station had not been testing the MSIVs as described in the Technical Specification (TS) Bases.

At 1600 on September 26, 2001, it was determined that the MSIVs on Braidwood Unit 2 were not tested in Mode 3, as required. This did not affect Braidwood Unit 1 since it was in refueling outage A1R09, outside of the mode of applicability for the TS Surveillance Requirement (SR). The failure to test the valves in Mode 3 resulted in a missed TS SR, which resulted in Braidwood Unit 2 entering SR 3.0.3. SR 3.0.3 allows up to 24 hours to perform the missed surveillance. In accordance with the Bases for TS 3.7.2 "Main Steam Isolation Valves (MSIVs)," SR 3.7.2.1 must be performed in Mode 3 at operating temperature and pressure. The surveillance can not be performed at power since the SR is stroke timing of the valve in the closed direction. Since the SR could not be performed, Generic Letter 87-009 "Sections 3.0 And 4.0 of Standard Tech Specs on Limiting Conditions For Operation And Surveillance Requirements" was used to allow 24 hours to seek enforcement discretion for Braidwood Unit 2.

Braidwood prepared a Notice of Enforcement Discretion (NOED) seeking discretion from compliance with the requirements of SR 3.7.2.1 and 3.7.2.2. The NOED and subsequent exigent License Amendment Request (LAR) sought discretion from performing SRs 3.7.2.1 and 3.7.2.2 until the first start-up after September 27, 2001. On September 27, 2001, the Nuclear Regulatory Commission (NRC) granted verbal approval of the NOED. The LAR was approved on November 2, 2001.

This event is being reported pursuant to 10CFR50.73(a)(2)(i)(B).

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

**A. Plant Operating Conditions Before The Event:**

Unit: 2                      Event Date: 9/26/2001                      Event Time: 1600  
 MODE: 1                      Reactor Power: 96

Reactor Coolant System [AB] Temperature: 586 degrees F, Pressure: 2235 psig

**B. Description of Event:**

Prior to the implementation of Improved Technical Specifications (ITS) at Braidwood Station the methodology and the implementing procedures for Main Steam [SB] Isolation Valve (MSIV) stroke testing had allowed the stroke testing to be performed in Modes 3, 4 or 5 with no cooldown occurring on the steam dumps. Prior to implementing ITS, the Surveillance Requirement (SR) allowed entry into Mode 3 to perform the surveillance, but did not require the SR to be performed in Mode 3. The Bases for the TS provided no guidance on when the surveillance was to be performed. Therefore, Station procedures were written to allow testing in Modes 3, 4 or 5.

In early 1995, the decision was made for Braidwood to convert to Improved Technical Specifications (ITS) based on NUREG 1431. The project was started and staffed by both company and contractor personnel.

In 1996, the ITS project team created the TS and Bases documents that would be submitted to the Nuclear Regulator Commission (NRC) as part of the License Amendment Request (LAR) for the conversion to ITS. For the conversion of each TS (Limiting Condition for Operation (LCO), Required Actions and SRs), each change from the Current Technical Specifications (CTS) to ITS had to be identified as either "more restrictive", "less restrictive" or "administrative." The change to the MSIV TS 3.7.1.5 was identified as an "administrative" change, since only a NOTE was added that did not change the essence of the TS.

In the conversion to ITS, the Bases documents were also converted using NUREG 1431. In CTS, the Bases for each TS were very short, with many being only a paragraph long. In ITS, the Bases for each TS is typically several pages long. The conversion process allowed for plant specific information to be added to the Bases documents. Any deviation from the NUREG Bases documents was identified. In this case, Braidwood did not deviate from the words provided in the NUREG. The following sentence was contained in the new Bases for SR 3.7.2.1: "This test is conducted in MODE 3 with the unit at operating temperature and pressure." This sentence created a more restrictive requirement than the current Station procedures and operating practice. This was not noted during the review of the TS and Bases material for the submittal. Failure to identify the condition at this time did not provide the Station the opportunity to make the required surveillance procedure changes in the future.

As part of the ITS project, the project team identified the population of procedures that needed to be reviewed. This review was to identify if a

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procedure change was needed, and if needed, what type the change would be. The changes could be technical or administrative in nature. These reviews encompassed thousands of procedures. The Operations procedures were reviewed by the ITS conversion project team since it was staffed to perform all the Operations Department tasks.

Procedures 1 and 2 BwOS 7.1.5-1 "Main Steam Isolation Valve Full Stroke Quarterly Surveillance" were part of the population reviewed by the ITS project team. The individual responsible for these two procedures is no longer employed by the company. He was knowledgeable of the process and plant operation. These two procedures were to be converted into 1 and 2 BwOSR 3.7.2.1 "Main Steam Isolation Valve Full Stroke Quarterly Surveillance." The material provided to the NRC in the LAR submittal (TS and Bases) was provided to the Station personnel performing procedure reviews as part of the conversion process. The expanded Bases was new to Station personnel as they were newly created documents as part of the conversion from CTS to ITS. The guidance provided for procedure review was to review the documentation provided. The individual who evaluated the "Main Steam Isolation Valve Full Stroke Quarterly Surveillance" procedure is no longer at Braidwood so an interview could not be completed.

The review failed to identify that the procedure would not adequately implement the ITS SR. During the evaluation of procedures 1 and 2 BwOS 7.1.5-1, the individual improperly identified the changes as a "number" only change (i.e. a change in the procedure numbering from "7.1.5-1" to "3.7.2.1").

Revision 0 of 1 and 2 BwOSR 3.7.2.1 was created and placed through the review and approval process. The procedure writer of these procedures (which were to replace 1 and 2 BwOS 7.1.5-1) was the same individual who evaluated the procedure to be a "number" only change. When the individual created the procedure change paperwork, he described the change as:

"Procedure renumbering and insertion of references associated with Improved Tech Spec requirements."

These two procedures were reviewed, approved and placed on the books on October 19, 1998. Approval of ITS was received from the NRC in late December 1998. Braidwood implemented ITS on February 19, 1999. At the time of implementation, the procedures that implemented SR 3.7.2.1 were inadequate and failed to properly execute the SR. Braidwood continued to perform the procedure as written and typically performed surveillance testing in Mode 4 or 5, as allowed by the procedure.

During refueling outage A1R09, the outage planning organization reviewed the MSIV TS and Bases and identified a potential concern. At 1600 on September 26, 2001, it was determined that the MSIVs on Braidwood Unit 2 were not tested in Mode 3 at operating temperature and pressure, as required. This did not affect Braidwood Unit 1 since it was in refueling outage A1R09 and not in the Mode of applicability for SR 3.7.2.1. The failure to test the valves in Mode 3 at operating temperature and pressure resulted in a missed TS SR, which resulted in Braidwood Unit 2 entering SR 3.0.3. SR 3.0.3 allows up to 24 hours to perform

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the missed surveillance. In accordance with the Bases for TS 3.7.2 "Main Steam Isolation Valves (MSIVs)," SR 3.7.2.1 must be performed in Mode 3 at operating temperature and pressure. The surveillance could not be performed at power since the SR is stroke timing of the valve in the closed direction. Since the SR could not be performed, Generic Letter 87-009 "Sections 3.0 And 4.0 of Standard Tech Specs on Limiting Conditions For Operation And Surveillance Requirements" was used to allow 24 hours to seek enforcement discretion for Braidwood Unit 2.

Braidwood prepared a Notice of Enforcement Discretion (NOED) seeking discretion from compliance with the requirements of SR 3.7.2.1 and 3.7.2.2. The NOED and subsequent exigent LAR sought discretion from performing SRs 3.7.2.1 and 3.7.2.2 until the first start-up on each Unit after September 27, 2001. On September 27, 2001, the NRC granted verbal approval of the NOED. The LAR was approved on November 2, 2001.

**C. Cause of Event:**

The Operations procedure writer failed to identify that the additional words in the Bases concerning testing in Mode 3 at operating temperature and pressure imposed more stringent requirements than the procedure he was reviewing for changes.

A second cause was that the Operations procedure writer classified the changes that were made to 1 and 2 BwOS 7.1.5-1 as "number" only changes rather than technical changes.

The root cause for this event is unknown since the responsible individual could not be interviewed.

**D. Safety Consequences:**

The effect of operating for a timeframe without demonstrating the ability to isolate the MSIVs within the required time under limiting test conditions was conservatively assessed. This was done by postulating that the valve stroke time could have been greater than previously measured. The likelihood and magnitude of such a postulated increase, and the margin available to accommodate it, were evaluated and determined to be acceptable. Failure to close was not postulated due to the successful past history of fast exercise tests.

The MSIVs are required to stroke closed within 5 seconds with the unit at operating temperature and pressure. The most recent stroke time data for Braidwood Station, Unit 2 indicated a maximum stroke time of 3.0 seconds during the last valve stroke testing during refueling outage A2R08.

During A1R09, Braidwood stroked each MSIV in Mode 5 to gather stroke time data and again in Mode 3 to meet the surveillance requirements and gather data. The valve stroke times in Mode 5 ranged from 2.72 seconds to 3.23 seconds. In Mode 3 the valve stroke times ranged from 2.57 seconds to 2.99 seconds.

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Based on the above data, it was concluded that the ability of the MSIVs to close within the required time at operating pressure and temperature was not adversely affected.

An evaluation of the safety significance and potential consequences of the proposed course of action was performed. Sufficient justification exists to reasonably conclude that the MSIVs were fully capable of achieving the 5-second closure criteria at normal operating pressure and temperature. Performing the SR under less limiting test conditions did not affect the failure frequency assumed for the MSIVs. Therefore, since the failure frequency is unaffected, the results of the probabilistic risk assessment (PRA) are unaffected by this situation.

The event did not result in a Safety System Functional Failure.

**E. Corrective Actions:**

Procedures 1 and 2 BwOSR 3.7.2.1 were revised to reflect that stroke timing of the MSIVs must be performed in Mode 3 at operating temperature and pressure.

Also, a review of the other Technical Specifications and Surveillance Requirements of ITS was conducted for extent of condition. This review identified the other SRs needing to be evaluated to determine if similar problems existed. All SRs that were modified by a Note or that had an unusual frequency were reviewed. Sixty-six items were identified in this review. Each of these items was reviewed and no similar problems were found.

**F. Previous Occurrences:**

There have been no other CTS to ITS conversion issues at Braidwood since ITS was implemented.

**G. Component Failure Data:**

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model</u>	<u>Mfg. Part Number</u>
N/A	N/A	N/A	N/A