Commonwealth Edison Company
Braidwood Generating Station
Route #1, Box 84
Braceville, IL 60407-9619
Tel 815-458-2301

ComEd

May 30, 1995
BW/95-0062

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted in accordance with the requirement of 10 CFR 50.73(a)(1) and 10 CFR 50.73(a)(2)(v), which requires a 30-day written report.

This report is number 95-004-00, Docket No. 50-457.

Yours truly,

T. J. Tulon
Station Manager
Braidwood Nuclear Station

TJT/BJM/dla
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Encl: Licensee Event Report
No. 457-95-004-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution
I.D.N.S.
I.D.N.S. Resident Inspector

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Braidwood Unit 2	05000457	1 of 6

TITLE (4) Two MSIVs inoperable while in Mode 3 during performance of MSIV Surveillance due to a procedural deficiency.

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBERS
05	01	95	95	-- 004 --	00	06	01	95	BRAIDWOOD UNIT 1	05000456
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	3
POWER LEVEL (10)	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
	20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(c)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER
	20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
M. Olson, Root Cause Team	(815)458-2801 x2028

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On May 1, 1995, during performance of 2BwOS 7.1.5-1, "Main Steam Isolation Valve Full Stroke Surveillance", the active and standby accumulator pressures were below the minimum pressure required to be operable (4800 psig) on the 2B and 2C Main Steam Isolation Valves. The appropriate Technical Specification Action requirements were entered and the MSIVs were recharged per design by the valve hydraulic pumps after the valves reopened. The surveillance procedure did not take into account the use of the active side accumulator hydraulics to reposition a four-way spool piece valve and reopen the MSIVs during the test of the Standby train hydraulics. Technical Specifications entered were 3.7.1 for MSIV operability and 3.0.3 for being beyond the allowable action limits with more than 1 MSIV inoperable while in Mode 3. Technical Specification 3.0.3 was entered for fifteen (15) minutes during the time the 2B MSIV accumulator was recharging to >4800 psig. Corrective actions include revision to the applicable MSIV testing procedure and training of licensed operators on the details of this event.

A. PLANT CONDITIONS PRIOR TO EVENT:

UNIT: Braidwood Unit 2 EVENT DATE: 05/01/95
EVENT TIME: 0040
MODE: 3 RX POWER: 0%
RCS [AB] TEMPERATURE/PRESSURE: NOT/NOP

B. DESCRIPTION OF EVENT:

There were no plant systems or equipment inoperable at the beginning of this event that contributed to the severity of the event.

At 0010 on May 1, 1995, a full stroke operability surveillance of the Unit 2 Main Steam Isolation Valves (MSIVs) was started by the Operating crew from the Main Control Room with one Equipment Attendant (EA)(non licensed) observing indications locally in the field. This surveillance, 2BwOS 7.1.5-1, Main Steam Isolation Valve Full Stroke Quarterly Surveillance, is used to verify that the MSIVs, when tested pursuant to Tech Spec 4.7.1.5 and 4.0.5, stroke to their specified Engineered Safeguards position. The testing is performed at an interval of 92 days in Modes 3, 4 or 5 following or preceding a cold shutdown. It is applicable to Modes 1, 2, and 3. The surveillance tests the closing function of the MSIV Active and Standby nitrogen/hydraulic accumulators; the standby train by jumpering Main Steamline Isolation relay contacts and timing the valve closure, and the Active train by use of the control switch on the Main Control Board (MCB).

The 2B and 2C MSIVs were being tested simultaneously, as is normal practice, starting with the Standby train. Per the surveillance, technicians from the Electrical Maintenance Department (EMD) placed the jumpers required to automatically close the valves and the MSIVs stroked closed as designed. When the control switches for the 2B and 2C MSIVs on the MCB were taken to the OPEN position to return the valves to their "As Found" position as required by the surveillance, the EA in the field heard a blowdown noise in the 2C MSIV enclosure room. Checking the pressure gauges he noted an approximately 200 psig pressure drop in the Active side accumulator. This pressure then appeared to equalize with the Standby side. The EA also heard a blowdown noise in the 2B MSIV enclosure room and, upon checking the pressure gauges for the 2B MSIV accumulators, noted the same set of circumstances as observed on the 2C MSIV. The EA relayed this information to the Operators in the Main Control Room (MCR) and at 0040, LCOAR 3.0.3 was entered due to having 2 MSIVs inoperable at the same time with both the Standby and Active train accumulators indicating less than 4800 psig. The MSIVs were allowed to reopen and recharge via the normal hydraulic accumulator pump for each valve.

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Braidwood Unit 2	05000457	95	-- 004 --	00	3 of 6

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

B. DESCRIPTION OF EVENT (continued):

At 0055, the pressure in the 2B MSIV accumulators had returned to greater than 4800 psig and LCOAR 3.0.3 was exited. LCOAR 7.1.5 for the 2B MSIV was then entered with only one MSIV inoperable. At 0105, this LCOAR was exited as the 2B MSIV accumulator pressures were restored.

At 0130, The System Engineer responsible for the MSIVs was called onsite to assist with troubleshooting the indications encountered during performance of the Full Stroke surveillance. It was decided to reperform the stroke test for the 2B MSIV Standby train. The Shift Engineer conducted a Heightened Level of Awareness (HLA) briefing for the Operating crew and the System Engineer accompanied the EA in the field. Pretest accumulator pressures recorded were: Active = 5100 psig and Standby = 4975 psig. Per procedure, EMD jumpered the Standby train slave relays which again caused the valve to close within the required 5 seconds. The Standby Accumulator pressure dropped to 3700 psig as expected. The Active side accumulator pressure did not change. After being satisfied that the Active side pressure was stable, Operators placed the Control Switch to the OPEN position per the procedure from the MCR. The pressure in the Active side accumulator immediately dropped to 4750 psig as the directional control valve shifted position. The System Engineer noted this to be a normal and expected occurrence due to the shifting of the 4-way solenoid valve when aligning the Active train to open the valve. The EA realized that this pressure drop was the same as he thought had occurred concurrent with the valve closure earlier in the shift. The MSIV continued to open until reaching the open limit switch, at which time the active train 4-way valve shifted again, per design. Active accumulator pressure dropped to 4400 psig which was very close to the Standby accumulator pressure. The EA realized that the 4-way valve shift and Active train pressure decrease was what he had thought was the blowdown actuation earlier in the shift.

At 0400, as a result of the above troubleshooting efforts, the System Engineer determined that the MSIVs were operating as designed. It was subsequently determined that the operating surveillance procedure failed to note or take into account this 4-way valve shift and Active accumulator pressure drop when reopening the MSIVs.

At 0500, it was determined that a four hour reportablility requirement existed as of 0400 when it was determined that the cause of the problem and the potential for further similar problems existed if the procedure was performed as written.

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At 0748, the appropriate NRC notification was made via the ENS phone system pursuant to 10CFR50.72(b)(2)(iii)(D). This report stated that "At 0400, during performance of 2BwOS 7.1.5-1, Main Steam Isolation Valve Full Stroke Surveillance, the MSIV active and standby accumulator pressures for the 2B and 2C valves were below the minimum pressures required to be operable. The appropriate Technical Specification Action Requirements were entered and the MSIV's recharged. This report is being made since the procedure as written does not take into account the use of the active side accumulator hydraulics to reposition the valve during the test of the valve's standby train hydraulics."

A note was added to the surveillance package that stated "Ensure Both Accumulators/MSIV have adequate pressure prior to reopening (>4800 psig)." The operating surveillance was then completed successfully without further incident.

At 1350 on 05/04/95, an additional ENS phone call was made for clarification of the first notification made on 05/01/95. This report read "The purpose of the ENS call was to report the fact that the surveillance procedure, as written, could have prevented the fulfillment of the safety function necessary to mitigate the consequences of an accident (10CFR50.72(b)(2)(iii)(D)), and was not to report that two MSIV's were below the minimum pressures required to be operable per Technical Specifications. The inoperable MSIVs were recognized at the time that they were rendered inoperable, and Technical Specification 3.0.3 was appropriately entered. The two MSIVs were reopened, the active accumulator pressure increased to above the Technical Specification limit, and 3.0.3 was exited. The Unit was in 3.0.3 for a total of fifteen (15) minutes, not 55 as noted in the original report, from 0040 to 0055. The System Engineer was called to investigate and at 0400 it was determined that the MSIVs were operating correctly and that the surveillance procedure was inadequate. At 0500 it was determined that a four hour reportability requirement existed as of 0400 when the cause of the problem was discovered and the potential for similar future problems existed if the procedure was performed as written."

This report is being submitted pursuant to 10CFR50.73(a)(1) and 50.73(a)(2)(v) - any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

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C. CAUSE OF EVENT:

1. Inadequate surveillance procedure. The Operating Surveillance for the MSIV full stroke test failed to contain a note or caution to inform operators of the Active accumulator pressure drop that occurs when manually reopening MSIV's due to a 4-way spool valve repositioning that could render both trains inoperable with pressures <4800 psig. Followed as written, this surveillance could have prevented the fulfillment of the safety action necessary to mitigate the consequences of an accident.

2. Habit intrusion/misunderstanding by Operators in the MCR on the meaning of the flowcharts in the surveillance procedures. The flowcharts as found in the surveillances appear the same as those used in the General Operating Procedures (BwGP's). The BwGP's allow for performing steps at the same time (in parallel) if parallel branches appear in the flowchart. The surveillances, however, were laid out with similar branches but only to allow for portions or partial surveillances to be run. There is no written direction on the proper use of the surveillance flowcharts like there is for the use of the BwGP flowcharts. Assuming the same meaning resulted in performance of the surveillance for two MSIV's at the same time (same train) which ultimately resulted in more than one MSIV inoperable while in Mode 3.

D. SAFETY ANALYSIS:

With both MSIV accumulator pressures below their Operability limit of 4800 psig, both 2B and 2C MSIVs may have been incapable of fully closing upon receipt of an automatic closure signal within the 5 seconds as required by Technical Specification 3.7.1.5. Additionally, Technical Specifications do not address having more than one MSIV inoperable at a time while in Modes 1,2 or 3.

Had an automatic closure signal been received by the MSIVs, the valves would have moved in the closed direction until all remaining hydraulic fluid in the Standby and Active accumulators had been exhausted. At this point, the hydraulic pump would have continued to pump the valves fully closed. This process may have taken as long as two minutes. In addition, should these MSIVs fail to close completely during a subsequent plant transient, the Emergency Operating Procedures contain contingency actions for the Operators to perform. The plant remained within the compliance requirements of Technical Specification 3.0.3 which allows for time limits to proceed in a controlled and orderly manner that is well within the

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specified cooldown capabilities of the facility assuming only the minimum required equipment is Operable. The safety significance of this event was minimal.

E. CORRECTIVE ACTIONS:

1. The MSIV Full Stroke surveillance procedure has been revised to include a note while performing the test of the Standby accumulator train. The note informs Operators to ensure the Standby accumulator pressure is again greater than the minimum pressure for Operability (>4800 psig) prior to reopening the MSIV to return the MSIV to it's "as-found" condition as required in the surveillance. This will ensure the Standby train is Operable and capable of closing the MSIV upon receipt of a Main Steam Line Isolation signal within five (5) seconds as required by Technical Specifications.

2. The Electronic Work Control System; Generating Station Maintenance Predefined Report is the method used by which the surveillance time interval and test performance requirements are tracked. This report has been revised to include a note to clarify that this surveillance is only required to be performed if going to, in, or coming from Cold Shutdown for greater than 48 hours as is in accordance with the Inservice Testing Program for these valves. Otherwise, a Partial Stroke and accumulator precharge check is the only requirement.

3. Operators will be trained on this event and the proper use of surveillance vs. BwGP flowcharts in Licensed Operator Requal Training. This will be tracked to completion by NTS Item #457-180-95-00401.

F. PREVIOUS OCCURRENCES:

There have been no previous occurrences of this type of event at Braidwood Station.

G. COMPONENT FAILURE DATA:

MANUFACTURER	NOMENCLATURE	MODEL	MFG PART NO.

(No components failed during or as a result of this event)