

Commonwealth Edison Company  
Braidwood Generating Station  
Route #1, Box 84  
Braceville, IL 60407-0619  
Tel 815-458-2801

June 20, 1997  
BW/97-0036



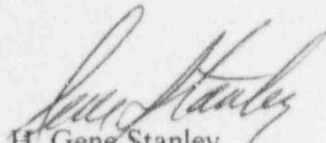
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Washington, D.C. 20555

To Whom It May Concern:

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

This report is number 97-006-00, Docket No. 50-456.

Yours Truly,

  
H. Gene Stanley  
Site Vice President  
Braidwood Nuclear Station

HGS/RS/vk  
I:\shared\admin\bw970036.doc

Enc: Licensee Event Report  
No. 456-97-006-00

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

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## LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. 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

FACILITY NAME (1):

Braidwood Unit 1

DOCKET NUMBER (2) 05000456

PAGE (3)  
1 of 5

TITLE (4)

Tech Spec entry int 3.0.3 and Unit 1 Cooldown due to ECCS Venting Issue

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 NUMBER	
05	22	97	97	006	00	06	21	97	Braidwood Unit 2	050000457	
			Byron Units 1 and 2								050000454,455
OPERATING MODE (9)		3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)		000									
			<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(iii)			<input type="checkbox"/> 73.71(b)	
			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(iv)			<input type="checkbox"/> 73.71(c)	
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(v)			<input type="checkbox"/> OTHER  (Specify in Abstract below and in Text, NRC Form 366A)	
			<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)			<input type="checkbox"/> 50.73(a)(2)(vii)				
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(viii)(A)				
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)			<input type="checkbox"/> 50.73(a)(2)(viii)(B)				
			<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(ii)			<input type="checkbox"/> 50.73(a)(2)(x)				
LICENSEE CONTACT FOR THIS LER (12)											
NAME (Include Position Title) R. Schliessmann, Regulatory Assurance								TELEPHONE NUMBER (Include Area Code) (815) 458-2801 Extension 2038			
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)											
YES (If yes, complete EXPECTED SUBMISSION DATE)				X NO		EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR	

Pursuant to Technical Specification 4.5.2, ECCS Subsystems, venting to the Chemical and Volume Control System pump casings and discharge piping high points outside of containment is required to be performed every 31 days. However, the monthly surveillance procedure required to meet this criterion does not require the applicable high head injection system components to be vented. Unit 1 cooled down and depressurized to 511 degrees and 1650 psig due to this event.

This deficiency was attributed to a management deficiency which credited system operation, e.g. dynamic venting, with meeting the requirement of T.S. 4.5.2. The procedure was approved without the requirement of venting the high head injection components primarily because the charging pumps are designed to be self venting (i.e. the pumps do not have vents on the pump casings).

Corrective actions included weekly ultrasonic examinations of piping until the Technical Specification is changed, issuance of a Daily Order and a verbal briefing to Operators on gas accumulation in stagnant lines, an exigent Technical Specification change, and procedure revision to include the monthly ultrasonic examinations in a Monthly Venting Surveillance, once the Technical Specification is approved.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Braidwood Unit 1	05000456	97	006	00	2 of 5

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

**A. PLANT CONDITIONS PRIOR TO EVENT:**

Unit: 1	Event Date: May 22 1997	Event Time: 1900 Hours
Reactor Mode: 3	Power Level: 72 CPS	RCS [AB] Temp./Press. NOT/NOP
Unit: 2		Event Time: 1900 Hours
Reactor Mode: 1	Power Level: 99%	RCS [AB] Temp./Press. NOT/NOP

**B. DESCRIPTION OF EVENT:**

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

On May 22, 1997, at the Byron Generating Station during the discussion of a clogged 2A Safety Injection (SI) pump vent, the Byron NRC Resident Inspectors raised a concern that the ECCS venting procedure does not include venting the {CB} (CV) pumps and CV discharge line high point. A similar procedure is used at Braidwood.

During the discussion, the NRC resident stated the position that a running pump is considered to flush a system, not vent it. The discharge piping downstream of the standby CV pump is not subjected to system flow and is therefore not vented.

The CV system high point vent is in a section of piping that is pressurized to CV pump discharge pressure (2500 psig) and it is not appropriate to routinely vent this section of piping for personnel safety and equipment reliability reasons.

A Braidwood Engineer had raised this issue concerning CV pump venting, in February, 1996. The result of the Problem Identification Form (PIF) review concluded that the pumps are self-venting due to their design (the pumps have no vents on their casings). Therefore, the TS surveillance requirement was considered to be met, and no other action was required.

Given the NRC position that system operation, e.g. dynamic venting, did not satisfy the surveillance requirement, Byron and Braidwood determined that they did not meet the Technical Specification (TS) requirement.

On May 22, 1997, both trains of CV at Braidwood were declared inoperable and TS 3.0.3 was entered on May 22, 1997 at 1900 hrs. In accordance with TS 4.0.3, the actions of TS 3.0.3 were delayed for 24 hours for performance of the missed surveillance.

As a result, ComEd requested that the NRC grant a Notice Of Enforcement Discretion (NOED) from the surveillance requirement for venting the CV pump casings and CV discharge piping high point until an exigent Technical Specification change could be submitted and approved, to change the ECCS venting requirement. This was pursued for Braidwood Unit 2 and Byron Units 1 and 2.

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Braidwood Unit 1	05000456	97	006	00	3 of 5

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

**B. DESCRIPTION OF EVENT(continued):**

Concurrently, an Emergency Technical Specification Amendment was pursued for Braidwood Unit 1.

On 5/22/97 at 2300 and 5/23/97 at 0230 for Braidwood Units 1 and 2, respectively, UT inspection of the subject CV system piping was complete and the piping determined to be full of water.

The draft NOED request was discussed with the NRC Staff and comments were included in the final package. The NOED request, as presented to the NRC, met the requirements documented in Administrative Letter 95-05, and was approved on 5/23/97. Verbal approval of the NOED was received at 1640.

Braidwood Unit 1 commenced cooldown at 1930 on 5/23/97. At 2103, notification was received that the Emergency Technical Specification change had been approved by NRR, and the unit began stabilizing temperature and pressure at 2104 hours to 511 degrees and 1650 psig.

ComEd is performing weekly UT inspections of the identified areas in the CV system piping. This inspection activity will continue until the NRC approves the amendments to revise the Technical Specifications.

Additionally, ComEd provided written information concerning gas accumulation in stagnant lines to licensed operators via a Daily Order. This information was communicated during shift briefings.

This event is being reported pursuant to 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

**C. CAUSE OF EVENT:**

This event was considered a management deficiency and involved a Technical Specification violation.

1/2 BwOS 5.2.b-2 currently has no requirements to vent the CV portion of ECCS. The conclusion of the 1996 PIF on this topic was that venting was not required, and the intent of the Technical Specification was being met.

Management considered system operation to be dynamic venting and thus fulfilling the surveillance requirement. Thus, this event is classified as being due to Management Methods, in that the risks and consequences of their decisions were not completely identified or assessed.

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Braidwood Unit 1	05000456	97	006	00	4 of 5

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**D. ASSESSMENT OF SAFETY CONSEQUENCES:**

Byron and Braidwood have performed UT inspections of potentially susceptible areas of the CV piping system. Specifically, the piping on the discharge side of the standby CV pump up to the downstream check valves for both units was UT inspected along with the stagnant piping around the 1/2 SI045 valves. No gas voids were identified in either section of piping. One additional intermediate high point location is being routinely inspected via UT. This location is on the discharge piping of the \_B CV pumps. When the \_B pump is idle this location is under pressure but has stagnant flow. UT inspections are performed at this location when the \_B pump is idle.

The above provides technical justification that the safety significance for this event is minimal. From a risk perspective, the surveillance issue did not increase the probability of an initiating accident that would require the CV system to mitigate the consequences of the accident.

In addition, ComEd has determined that there was minimal impact on the functional capability of the CV system to perform its intended function of cooling the reactor core and providing shutdown capability following initiation of certain accidents.

ComEd has determined that the CV system was fully capable of performing its intended design function, including mitigation of design basis accidents.

Although it has been determined that Byron and Braidwood were not in compliance with the surveillance requirements in TS 4.5.2.b.1, the functional intent of the surveillance was met by the inherent design of the CV pumps and the configuration of the system piping. This is further supported by the compensatory action, which was completed on May 23, 1997 to perform UT inspections of the vulnerable sections of CV system piping for gas voids. No gas voids were identified. Therefore, since the CV system is expected to function as designed, there would be no increase in consequences from that previously evaluated.

**E. CORRECTIVE ACTIONS:**

Weekly UT inspection of vulnerable piping is being performed and will continue until the Technical Specification change is approved. This will be tracked by NTS item 456-180-97-SCAQ0000601.

A Daily Order was issued on 5/23/97 to licensed operators to provide written information concerning gas accumulation in stagnant lines. This information was communicated verbally during shift briefings to heighten awareness.

An exigent Technical Specification change was submitted on 5/23/97 to make the change permanent for Unit 2.



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**E. CORRECTIVE ACTIONS:**

The appropriate surveillances (1/2 BwOS 5.2.b-1 and 2) will be reviewed for adequacy upon receipt of the exigent License Amendment. This will be tracked by NTS item 456-180-97-SCAQ0000602.

A new ECCS surveillance to perform UT inspections on the CV system areas covered by Technical Specification 4.5.2 on a 31 day basis, including acceptance criteria and actions to satisfy the surveillance requirements, will be created. This will be tracked by NTS item 456-180-97-SCAQ0000603.

A review of selected Technical Specification surveillances will be performed to verify literal compliance with Technical Specification requirements. Results will determine further actions. This will be tracked by NTS item 456-180-97-SCAQ0000604.

**F. PREVIOUS OCCURRENCES:**

**IEN 88-23** "Potential for Gas Binding of High Pressure SI Pumps during a LOCA" This item addresses the potential for common-mode failure caused by hydrogen gas binding of the high-head safety injection pumps (Charging Pump) during a Loss-Of-Coolant Accident (LOCA). The Braidwood review determined that the layout of the CV pump suction piping is such that no high points exist which would give the gas binding concerns presented by the Notice.

**IN 90-64** " Potential for Common-Mode Failure of High Pressure SI Pumps or Release of Reactor Coolant Outside Containment During a LOCA

IEN 90-064 describes an industry event where the manner in which the vent line isolation valves were installed allowed the Volume Control Tank (VCT) to drain through these high-point vent isolation valves. The installed configuration of the valves at Haddam Neck was such that failure of these valves to isolate during a LOCA (i.e., during ECCS injection phase) could drain down the VCT and allow hydrogen gas in the VCT (and any gas that had accumulated in the vent line) to be transported to the suction of the charging pumps by way of the high-point vent charging pump suction line. The Braidwood review determined that Braidwood's system configuration is such that the event described in the NRC Information Notice is not applicable.

**G. COMPONENT FAILURE DATA:**

MANUFACTURER ----- NOMENCLATURE MODEL MFG. PART NO.

Since no component failure occurred, this section is not applicable.