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Exelon Nuclear

June 7, 2002
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U. S. Nuclear Regulatory 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 2002-001-00, "Multiple Test Failures of Pressurizer Safety Valves and Failure to Report Those Failures Due to Management Weakness in Applying Reportability Requirements"

The enclosed Licensee Event Report (LER) is being submitted in accordance with 10 CFR 50.73, "Licensee event report system", paragraph (a)(2)(i)(B). 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 June 7, 2002.

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 2002-001-00

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

IE22

bcc: Braidwood Station Project Manager - NRR
Nicholas Reynolds - Winston & Strawn
Regulatory Assurance Manager - Braidwood Station
Regulatory Assurance Manager - Byron Station
Vice President - Licensing and Regulatory Affairs
Director, Licensing - Midwest Regional Operating Group
Manager, Licensing - Braidwood and Byron Stations
Braidwood Nuclear Licensing Administrator
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NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Braidwood, Unit 2	STN 05000457	1 of 3

4. TITLE
Multiple Test Failures of Pressurizer Safety Valves And Failure to Report Those Failures Due to Management Weakness in Applying Reportability Requirements

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
04	08	2002	2002	-001	-00	6	7	2002	N/A	N/A
									FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE	1
10. POWER LEVEL	100

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2201(d)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(1)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ OTHER Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(iii)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	
☐ 20.2203(a)(2)(iv)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	
☐ 20.2203(a)(2)(v)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(viii)(A)	
☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Mike Smith, System Engineering Manager	(815) 417-2243

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	AB	SV	Crosby	N	N/A	N/A	N/A	N/A	N/A

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

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

On April 8, 2002, Braidwood Station discovered that the failure of multiple pressurizer safety valves (PSVs) removed during Unit 2 refueling outages A2R07 and A2R08 and subsequently tested at an offsite facility, was not reported as required. In each of the outages, two of three PSVs failed to lift within the required Technical Specification (TS) setpoint when tested at an offsite test facility. TS 3.4.10, "Pressurizer Safety Valves," requires three pressurizer safety valves to be operable with lift settings greater than or equal to 2460 psig and less than or equal to 2510 psig. The surveillance requirement requires each valve to be operable in accordance with the Inservice Testing (IST) Program and that following testing the lift setting shall be within +/- 1 percent of the TS setpoint.

There are no material condition issues with the PSVs that are contributing to the test failures. The PSVs are performing within their design capabilities. The test failures are mainly due to the close tolerance required by the current plant safety analysis and reflected in TSs and the inability of the valves to perform within that tolerance. The corrective action to prevent further test failures is to investigate relaxing the 1 percent TS requirement for the PSV lift setpoint tolerance. Identification and training of all personnel involved in the decision process for determining reportability is the corrective action to prevent future errors in reportability evaluation.

An engineering analysis on the effects of the PSVs lifting outside of the TS tolerance concluded that all acceptance criteria in the Updated Final Safety Analysis Report Chapter 15, "Accident Analyses," were still met.

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

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

Unit: 2 Event Date: 4/8/2002 Event Time: 0900

MODE: 1 Reactor Power: 100 percent

Reactor Coolant System [AB] Temperature: 580 degrees F, Pressure: 2235 psig

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

During refueling outages A2R07 (May 1, 1999 - May 27, 1999) and A2R08 (October 21, 2000 - November 16, 2000), the three pressurizer safety valves [AB] (RY) (i.e., 2RY8010A, 2RY8010B and 2RY8010C) were removed in accordance with the IST program and replaced with three spare valves that had been previously verified to be within the TS required tolerance of +/- 1 percent.

In both refueling outages, the three PSVs that were removed were sent to the NWS Technologies facility for as-found lift setpoint testing and refurbishment. The acceptance criteria for the as-found lift setpoint is 2485 psig +/- 1 percent, as required by TS 3.4.10. Two of the three PSVs from both A2R07 and A2R08 exceeded this criterion. For valves removed during A2R07 the out of tolerance lift setpoints were -2.1 percent and +1.4 percent. For valves removed during A2R08 the out of tolerance lift setpoints were -1.1 percent and -1.2 percent. Although outside of the TS required tolerance, the valve lift setpoints were within the American Society of Mechanical Engineers, Section XI, "Rules For Inservice Inspection of Nuclear Power Plant Components," part OM-1 acceptance criteria of +/- 3 percent. Also, the valves were subjected to subsequent bench tests where the valves tested within the +/- 1 percent of the TS acceptance criteria without any repairs being made to the valves.

Station management did not recognize the reportability requirement of multiple pressurizer safety valves being inoperable until a similar condition occurred with the PSVs tested from refueling outage A1R09; this event is reported in LER 2002-001-00. The condition of multiple pressurizer safety valves being outside of their required lift setting tolerance band is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plants Technical Specifications."

C. **Cause of Event**

The PSVs were inspected by the vendor and no material condition issues were found that may have contributed to the out of tolerance condition.

An Electric Power Research Institute (EPRI) evaluation concerning safety and relief valve testing indicates that the PSVs at Braidwood Station are performing within their design capabilities. The test failures are mainly due to the close

tolerance required by the current plant safety analysis and reflected in TSs and the inability of the valves to perform within that tolerance.

The offsite test facility, NWS Technologies, indicated that based on industry experience, the PSVs performed as expected. They stated that in the industry, the number of valves exceeding the 1 percent tolerance band is significant. They also stated that most valves tested do not exceed the 2 percent level, and it is rare for valves to exceed the 3 percent range. Based on this response and a review of Braidwood Station's historical data, the Braidwood Station PSV test results are typical of those in the industry.

The root cause of the failure to report the valve lift setpoint test failures from refueling outages A2R07 and A2R08 is management weakness in correctly applying the reportability requirements of NUREG 1022, "Event Reporting Guidelines."

D. Safety Consequences:

The PSVs in conjunction with the Reactor Protection System, provide overpressure protection for the Reactor Coolant (RC) [AB] System. The safety valves are designed to prevent system pressure from exceeding the RC System safety limit of 2735 psig.

An engineering analysis on the effects of the PSVs lifting outside of the TS tolerance concluded that all acceptance criteria in the Updated Final Safety Analysis Report Chapter 15 analyses were still met.

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

E. Corrective Actions:

Revision of the safety analysis to support relaxation of the TS lift tolerance for pressurizer safety valves is being investigated as the corrective action to prevent future PSV lift test failures.

Identification and training of all personnel involved in the decision process for determining reportability is the corrective action to prevent future errors in reportability evaluation.

F. Previous Occurrences:

Test data from the last five refueling outages at Braidwood show that out of 15 valves tested, eight were out of tolerance. Five of those eight were out of tolerance low, three were high. Only one of the valves exceeded 2 percent; none exceeded 3 percent.

G. Component Failure Data:

Manufacturer	Nomenclature	Model	Mfg. Part Number
Crosby	Pressurizer Safety Valve	HB-BP-86	N/A