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VPNPD-96-074

September 23, 1996

Document Control Desk  
US NUCLEAR REGULATORY COMMISSION  
Mail Station P1-137  
Washington, DC 20555

Gentlemen:

DOCKET 50-266

LICENSEE EVENT REPORT 96-008-00

MISSED FULL PRESSURE TEST OF CONTAINMENT AIRLOCK

POINT BEACH NUCLEAR PLANT, UNIT 1

Enclosed is Licensee Event Report 96-008-00 for Point Beach Nuclear Plant, Unit 1. This report is provided in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications." This report describes an event where a partial pressure leak test of the Unit 1 containment upper airlock inner door indicated excessive leakage which should have resulted in commencing a full pressure leak test. The full pressure test was not done as required by the Technical Specifications.

If you require additional information, please contact us.

Sincerely,

A handwritten signature in dark ink, appearing to read 'B. Link'.

Bob Link  
Vice President  
Nuclear Power

JSG

Enclosure

cc: NRC Resident Inspector  
NRC Regional Administrator

9609300261 960923  
PDR ADOCK 05000266  
S PDR

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## LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH  
THIS INFORMATION COLLECTION REQUEST: 50.0 HRS.  
REPORTED LESSONS LEARNED ARE INCORPORATED  
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NUCLEAR REGULATORY COMMISSION, WASHINGTON,  
DC 20555-0001, AND TO THE PAPERWORK REDUCTION  
PROJECT

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Point Beach Nuclear Plant, Unit 1

DOCKET NUMBER (2)

05000266

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TITLE (4)

Missed Full Pressure Test of Containment Airlock

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
08	06	96	96	- 008	- 00	09	23	96	FACILITY NAME	DOCKET NUMBER 05000
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		100	20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)				50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)				50.73(a)(2)(v)	Specify in Abstract below
			20.2203(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)	or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME

Jeff Gundersen, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(414) 221-3233

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

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

At 0400 hours on August 6, 1996, the inner door of the Unit 1 containment upper hatch failed an airlock door seal test. Since the calculated leak rate was greater than the Technical Specification limit, the Unit 1 upper containment hatch should have been full pressure tested in accordance with Technical Specification 15.4.4.II.B.2.a. Instead, the inner door seal was repaired, and on August 6, at 1223 hours, another partial pressure test was performed, this time with satisfactory results. On August 27, it was determined that a full pressure test should have been done. The test was ordered for the upper hatch, and was completed on August 31 at 1440 hours. This Technical Specification violation was the result of inadequate guidance in the containment hatch door seals test procedures.

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## Event Description:

At 0400 hours on August 6, 1996, with Unit 1 operating at 100% power, the inner door of the Unit 1 containment upper hatch failed an airlock door seal test. This test was being done in accordance with Procedure TS-10A, "Containment Airlock Door Seal Testing;" and TS-10A, Appendix B, "Hatch Door Seals;" to comply with Technical Specification 15.4.4.II.C.1.d. This requirement is to test the personnel airlock door seals within 3 days after the doors are opened.

The seal test, which the inner door failed, was a differential pressure vacuum test. A vacuum is established between the two door o-ring seals and the differential pressure between the test volume and atmospheric pressure is measured. This differential pressure is converted to a leak rate using the vacuum pump performance curve. The leak rate is then adjusted to an equivalent containment design pressure ( $P_a$ ) leak rate. The leakage rate limit for this test, once the test value is extrapolated to  $P_a$  and added to the other Type "B" and Type "C" leak rates is 60% of the maximum allowable containment leak rate ( $L_a$ ).  $0.6 L_a$  equals 231,107 standard cubic centimeters per minute (sccm). The limit of  $0.6 L_a$  for the airlock door seal test is specified in Technical Specification 15.4.4.II.B.2.a which states "If the total identified in II.B.2, above, exceeds  $0.6 L_a$ , then the airlock containing the worst door shall be full pressure tested to determine the actual leakage performance."

The inner door "full" pressure leak rate was calculated to be greater than 262,394 sccm. Since this leak rate is greater than the Technical Specification limit, the Unit 1 upper containment hatch should have been full pressure tested in accordance with Technical Specification 15.4.4.II.B.2.a. Instead, the personnel exited the hatch and verified that the operable outer door was shut. At 0430 hours, a second verification was performed to ensure that the Unit 1 containment upper hatch outer door was shut. The inner door seal was subsequently repaired and at 1223 hours, TS-10A was performed again with satisfactory results. A full pressure test of the upper hatch was not performed as required. On August 27, this oversight was identified and a full pressure test was ordered for the upper hatch. This test was completed on August 31 at 1440 hours with satisfactory results.

## Component and System Description:

The containment airlocks are not routinely tested at full pressure. Instead, the airlock door seals are tested by drawing a vacuum between the seals and measuring the differential pressure between the test volume and

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the atmosphere. This differential pressure is used to calculate a "full" pressure leak rate using the vacuum pump calibration curve to determine the test leak rate, which is then converted to the leak rate at  $P_a$ .

The airlock door seal test is a Type "B" test which measures leakage across individual pressure containing boundaries of primary reactor containment penetrations. The total leakage from Type "B" tests combined with the leakage from other Type "C" tests may not exceed  $0.6 L_a$ , or 231,107 sccm.

When partial pressure testing of the hatch door seals was instituted at Point Beach Nuclear Plant, the Technical Specifications had to be changed to allow testing at pressures below  $P_a$ . However, since the partial pressure test can only be used to estimate the leakage at  $P_a$ , the test is not considered to be the final analysis of hatch leakage. Therefore, Technical Specification 15.4.4.II.B.2 was added so that a full pressure test would be done to determine the actual hatch leakage if the partial pressure test indicated a leak rate greater than  $0.6 L_a$ .

**Cause:**

Failure to comply with Procedures TS-10A and TS-10A, Appendix B, due to inadequate procedural guidance. The procedures do not provide adequate guidance to meet the Technical Specification requirements.

The Technical Specifications regarding containment airlock testing and associated Limiting Conditions for Operation are conflicting due to the implementation of License Amendment numbers 160 and 164. This change inserted new Limiting Conditions for Operation and Bases into Technical Specification section 15.3.6 for the containment and penetrations. Section 15.4.4 was also altered, deleting the explicit LCO for the failure of a Type "B" full pressure test, instead referencing section 15.3.6. A conflict now exists between sections 15.4.4 and 15.3.6. Standard Technical Specifications, on which Technical Specification Change Request 163 was based, accepts partial pressure leak tests of containment hatches for airlock door operability determinations. However, since section 15.4.4 is written to require a full pressure test to determine the actual airlock leakage upon failure of a partial pressure vacuum test, the LCO is not entered on the basis of a partial pressure test. Only a full pressure test can be used for an operability determination. The current basis for Technical Specification LCO 15.3.6.A.1.d.(3) discusses a situation in which the LCO has been entered due to the failure of a hatch seal test. This situation is not possible with the current revision of Specification 15.4.4. Specification 15.4.4.II.B.2 should have been deleted with the changes proposed in change request 163.



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**Corrective Actions:**

On August 31 at 1440 hours a full pressure test for the Unit 1 containment upper hatch was completed in accordance with TS-10 "Local Leak Test of Containment Personnel Hatches." Procedures TS-10A and TS-10A Appendix B will be changed to eliminate an incorrect reference and clarify the Technical Specification requirements. Removal of Technical Specification 15.4.4.II.B.2, which is contradictory, is included as part of Technical Specification Change Request 187, which proposes implementation of 10 CFR 50 Appendix J, Option B. This program is designed to ensure compliance with the proper Limiting Conditions for Operation which remain in the Technical Specifications. The Appendix J, Option B leak test program will accept our TS-10A airlock partial pressure vacuum tests for operability determinations and LCO entries.

**Reportability:**

This event is being reported in accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications."

**Safety Assessment:**

Upon completion of TS-10A in which the Unit 1 containment upper hatch inner door failed its partial pressure leak test, the operable outer hatch door was verified closed. Thirty minutes later at 0430 hours, the outer door was again verified to be shut. Only one of the two seals of the inner hatch door needed maintenance due to a nick in the seal. The results of a partial pressure seal test can be unacceptable if one of the seals is leaking since the test volume is the area between the two seals. Since one functional seal can provide a pressure boundary, the airlock may have passed the full pressure test before the seal was repaired. The operability of the outer door was never in question since it had passed its previous partial pressure test as well as the one performed after the inner door was fixed. No work was done on the outer door throughout this event. The Unit 1 containment was never inoperable since the closure of a single operable airlock door supports containment integrity. Therefore, the Point Beach Nuclear Plant was maintained in a safe condition throughout this event.

**Similar Occurrences:**

In the past, Point Beach has had tests in accordance with TS-10A fail due to difficulties with the test equipment. This resulted in the door being declared out of service until the test was satisfactorily completed. When

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a hatch door is declared out of service, the containment integrity Limiting Conditions for Operation, Technical Specification 15.3.6.A.1.d.(1), must be complied with. The required actions are to close and lock the operable door and verify it as such every 31 days. A full pressure test is not required unless a TS-10A local leak test results in a leak rate greater than 0.6 L<sub>a</sub>.