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10 CFR 50.73

April 30, 1990

U. S. NUCLEAR REGULATORY COMMISSION
Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Gentlemen:

DOCKET 50-266
LICENSEE EVENT REPORT 90-001-00
CONTAINMENT LEAKAGE IN EXCESS OF
TECHNICAL SPECIFICATIONS
POINT BEACH NUCLEAR PLANT, UNIT 1

Enclosed is Licensee Event Report 90-001-00 for Point Beach Nuclear Plant, Unit 1. This report is provided in accordance with 10 CFR 50.73(a)(2)(i), "Any Operation or Condition Prohibited by the Plant's Technical Specifications."

This report details the failure of a containment isolation valve to pass its Type "B" leak rate test.

If any further information is required, please contact us.

Very truly yours,

CW Fay

C. W. Fay
Vice President
Nuclear Power

Enclosure

Copies to NRC Regional Administrator, Region III
NRC Resident Inspector

IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Point Beach Nuclear Plant	0 5 0 0 0 2 6 6	1 OF 0 4

TITLE (4) Containment Isolation Valve Leakage in Excess of Tech Spec Limits

EVENT DATE (5) MONTH	DAY	YEAR	LER NUMBER (6) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	REPORT DATE (7) MONTH	DAY	YEAR	OTHER FACILITIES INVOLVED (8) FACILITY NAMES	DOCKET NUMBER(S)
0 4	0 2	9 0	9 0	0 0 1	0 0	0 4	3 0	9 0		0 5 0 0 0 2 6 6
										0 5 0 0 0

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

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

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
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 AREA CODE	
C. W. Fay, Vice President - Nuclear Power	4 1 4	2 2 1 - 2 8 1 1

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
X	B D	I S V	P 3 0 5	Y					

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 fifteen single-space typewritten lines) (16)

On April 2, 1990, during Appendix J, "Type C" containment leak rate testing, service air system check valve 1SA-17 was discovered with leakage in excess of limits cited in Technical Specifications 15.4.4.II.B and 15.4.4.III.B. The required test pressure could not be achieved during two attempts utilizing the low volume "leak rate test rig," (leakage off scale-high; greater than two liters per minute). Two intermediate attempts to quantify leakage with the high volume "mass flow rate test rig" resulted with no detectable leakage. In this case, the required test pressure could not be achieved during the first two attempts with the low volume "leak rate test rig"; therefore, a leak rate for the design basis conditions could not be quantified.

Investigations by Maintenance identified no anomalies with the valve or the valve internals. It is suspected that the two intermediate attempts may have partially cycled the valve and properly aligned/seated the valve disc. The valve was reassembled, tested satisfactorily, and restored to operation.

This report is filed pursuant to 10 CFR 50.73(a)(2)(i), "Any operation or condition prohibited by the plant's Technical Specifications."

EVENT DESCRIPTION

On March 31, 1990, Unit 1 shut down for annual refueling and maintenance Outage 17. On April 2, operators commenced Refueling Test 49, "Leak Check of the Service Air Containment Penetration." This test is completed annually to satisfy the requirements of 10 CFR 50, Appendix J and plant Technical Specifications. The low volume leak rate test equipment was installed, but the operator was unable to pressurize the penetration. The test meter read "off scale-high" which indicated air leakage greater than two liters per minute. This was confirmed as the operator witnessed significant air passage via the leak test discharge path.

At this point in time, service air check valve 1SA-17 was suspected to have backleakage. In order to quantify the backleakage, the operator connected the high volume leak rate test equipment. The penetration pressurized in approximately 30 seconds, and no appreciable leakage was noted. The low volume leak rate test equipment was installed a second time, and again the operator was unable to pressurize the penetration. The high volume leak rate test equipment was reattached, and the penetration pressurized in approximately 10 seconds. The low volume leak rate test equipment was attached a third time. This time the penetration pressurized and maintained an acceptable leak rate of 1280 standard cubic centimeters per second (sccm).

Maintenance Work Request 901575 was initiated to investigate the problem. No hardware anomalies were found. It is suspected that the two intermediate attempts to quantify leakage with the high volume test equipment may have partially cycled the valve and seated the valve disc. The valve was reassembled, tested satisfactorily, and restored to operation.

COMPONENT AND SYSTEM DESCRIPTIONS

Valve 1SA-17 is a 4-inch, 150 pound class, carbon steel (A-216 GR WCB), swing check valve. (Figure No. 1561-A weld end, Drawing 034963, manufactured by the William Powell Company, Cincinnati, Ohio) It is located outside of containment, on the supply side of the containment service air header. It has been in service since commercial operation began in December 1970.

Piping on either side of the check valve is a Schedule 40 carbon steel ASTM A-106, Grade B, with a design rating of 120 psig at 100°F. Penetration piping and check valve 1SA-17 are normally isolated while the unit is at power. Additional isolation capability for this piping is provided by manually-operated valve 1SA-15 outside of containment.

REPORTABILITY

This licensee event report is filed pursuant to 10 CFR 50.73(a)(2)(i), "any operation or condition prohibited by the plant's Technical Specifications." The NRC resident inspector was notified.

The Energy Industry Identification System component function identifier and system name of the valve and system referred to in this LER are:

Valve No.	1SA-17
System	BD
Component	ISV

SAFETY ASSESSMENT

Operation of Unit 1 during the last fuel cycle posed no significant safety hazard to the general public or to the employees of the Point Beach Nuclear Plant. Alternate means of manually isolating the piping system outside of containment tested satisfactorily and was available to the operators.

In addition, no event in the Final Safety Analysis Report considers a need for service air supplies to containment.

SIMILAR OCCURRENCES AND GENERIC IMPLICATIONS

Check valve 1SA-17 has a history of corrective maintenance. In March 1974 and December 1975 (Abnormal Occurrences 74-057 and 76-003), the valve exhibited excessive leakage and was repaired. Because of the incidence of repair, the check valve was modified with a new composition disc in October 1977. Valve performance remained acceptable until October 1979 when the valve disc was again replaced. Since that date, valve repairs included:

1. Removal of debris scale in October 1981 (LER 81-014).
2. Disc adjustments and debris scale removal in April 1986.
3. Disc adjustments and debris scale removal in May 1987.
4. Disc adjustments in May 1988.

In 1989, leakage past valve 1SA-17 was at an acceptable value of approximately 1 sccm.

Corrective maintenance to the identical valve installed in Unit 2 (2SA-17) occurred on the following dates:

1. Modified valve with a composition disc in May 1977.
2. Disc adjustments and debris scale removal in October 1985 (LER 85-002).
3. Disc and disc holder hanger adjustments in September 1986.

Considerable maintenance has been completed on these two valves. The nuclear plant reliability data system was consulted for failure data with regard to Powell check valves, Model 1561-A, and no significant trends could be developed. The problems identified appear to be unique to Point Beach Nuclear Plant, and no industry generic concerns are evident.

CAUSES AND CORRECTIVE ACTIONS

Past maintenance assessments identified the disc in need of minor adjustment. Part of the valves inherent design provides some allowance for the valve to self-adjust to establish proper seating (leak tight condition). The fact that the valve has problems self-adjusting at low differential pressures characterizes many of the past failures. Two items abet the failures of 1SA-17.

1. The size of the disc, which is 4.03 inches. The size of the disc is directly proportional to the weight and the differential pressure necessary to seat it. At lower differential pressures (such as those exerted by the low volume leak rate test equipment), the valve is less likely to seat properly.

2. The valve design causes the disc to seat at a slight incline. If self-adjustment is necessary, the entire disc must shift upwards slightly, against the forces of gravity and the friction of the seats.

Corrective actions will include:

1. A successful leak test of the penetration will be conducted before returning the unit to operation.

2. Manual isolation valves on either side of 1SA-17 will be administratively controlled "shut" unless unit is in cold shutdown to prevent any use of the penetration.

3. The penetration will be modified with a suitable replacement for valve 1SA-17 by the end of Unit 1 Refueling Outage 18 (June 1991).