NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

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

TITLE (4)
Suspected Inoperability of Containment Isolation Valve

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 NAMES	DOCKET NUMBER(S)
0 7	1 2	8 8	8 8	0 0 6	0 0	0 8	1 1	8 8	None	0 5 0 0 0
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OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	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)	X 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
C. W. Fay, Vice President, Nuclear Power	AREA CODE 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	A B	S M V	V 0 3 7	No					

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 July 12, 1988, during normal duties, an operator stationed in the primary auxiliary building found 1 SC-953 (pressurizer liquid space sample/containment isolation valve for Unit 1) in the indicated mid-position, cause unknown. Since 1 SC-953 was not indicated closed (without an open signal, the valve was supposed to be closed), the valve could be considered not closed and possibly inoperable and the definition of containment integrity possibly not met. The operator remotely opened the valve fully and remotely closed the valve. The valve, after this single cycle, indicated fully closed. The valve was then considered operable, and containment integrity, by definition, was restored.

The intermediate-term corrective action has been to submit the valve to a rigorous surveillance program beginning with frequent cycling and slowly reducing testing frequency after successful tests.

The valve in question is a 3/8-inch pneumatic globe valve and is normally closed except for five times weekly when it is used to sample the pressurizer liquid space fluid. Since another series valve is normally maintained closed, and was closed at the time of discovery, there was no risk to public health and safety as a result of the potentially-open valve.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Point Beach Nuclear Plant	0 5 0 0 0 2 6 6	8 8	— 0 0 6	— 0 0	2 OF 1 6

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

EVENT DESCRIPTION

Point Beach Nuclear Plant Unit 1 was operating at 100% power on July 12, 1988. During normal duties in the primary auxiliary building, a licensed auxiliary operator noted that the position indication for Valve 1 SC-953 was in the mid-position. This valve is normally used five times each week in the process of taking a sample of the water in the pressurizer. Upon discovery, the operator, with concurrence from his supervisor, opened the valve fully from the remote location and then closed the valve fully. After this single cycle, the valve indicated fully closed. Since the operability of the valve was in question after the discovery of position indication of not closed, the valve was considered technically inoperable from the time of discovery until the completion of the cycle to close (approximately 30 seconds). Therefore, the definition of containment integrity as stated in Technical Specification 15.1.d.4, "Containment integrity is defined to exist when: ...All automatic containment isolation valves are operable or are secured closed," was not met for those 30 seconds. Containment integrity is required while not in cold or refueling shutdown condition.

BACKGROUND

Investigation of the maintenance history of 1 SC-953 revealed the following:

During the recent Unit 1 refueling (April-May 1988), a maintenance work request was issued to remove accumulated boric acid crystals and make a packing adjustment on 1 SC-953. The valve was cleaned and its packing adjusted on April 22, 1988. The post-maintenance stroke test was successful with an open time of 4.29 seconds and a close time of 4.34 seconds. The acceptable closing time for operability is less than 15 seconds. There is no time limitation for the open function of the valve. The safety function of the valve is to close upon a containment isolation signal.

On April 25, 1988, the containment isolation valve leak test indicated need of internal repair of the valve. A routine maintenance test of the stroke time for SC-953 was performed on May 5, 1988, with results of closing in 5.83 seconds and opening in 5.05 seconds. Later on May 5, 1988, the valve was removed and Maintenance personnel replaced the seat plug, carbon studs, and stud nuts. The old plug and valve seat were worn and the gasket under the seat was eroded.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Point Beach Nuclear Plant	0 5 0 0 0 2 6 6	8 8	-- 0 0 6	-- 0 0	3 OF 6

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

On May 6, 1988, a replacement valve for 1 SC 953-S was obtained from another nuclear power plant. 1 SC-953-S is the solenoid-operated valve (SOV) for 1 SC-953. The new SOV was an ASCO three-way solenoid valve with a maximum operating pressure differential (MOPD) of greater than 100 psid. (The old 1 SC-953-S had an MOPD of approximately 70 psid.) Following replacement of wire leads to 1 SC-953 and the air solenoid valve, 1-SC-953-S, three cycle tests of 1 SC-953 were performed on May 7, 1988, to verify operability of the 1 SC-953-S and 1 SC-953 valves after maintenance using the controlling Special Maintenance Procedure #885. These tests were successful with stroke times to open and close of less than five seconds.

On May 8, 1988, 1 SC-953 was again cycled to provide documentation of a post-maintenance test for the maintenance work request that repaired 1 SC-953 on May 5, 1988. The opening and closing times for 1 SC-953 were 5.38 and 4.75, respectively.

On June 3, 1988, the other nuclear power plant informed us that one of their 100 psid MOPD ASCO solenoid valves had stuck and failed to operate upon demand. The valve had been a normally-energized solenoid. Since we had received two valves from the same lot as the failed valve, we decided to test both of the valves. 1 SC-953-S is a normally-deenergized valve. While we expected no difficulty in the operation of this valve, we believed testing to be prudent. The tests were successful with closing times of 5.63 seconds and opening times of 5.49 seconds. The other solenoid valve, 1 SC-955-S (solenoid valve for the reactor coolant system hot leg sample), which was normally energized, was also tested successfully.

On July 12, 1988, 1 SC-953 was found in the indicated mid-position. After the open/close cycle performed by the licensed auxiliary operator, plant management personnel decided to begin increased surveillance. The results of Inservice Test 60, performed as a result of the mid-position discovery, are:

Open Time: 2.91±0.24 seconds
Close Time: 5.54±0.32 seconds
Confidence Level = 95 percent

For several days, the valve was cycled two times each shift. The frequency was then reduced to once per day, then to three times per week. The valve is now being tested twice per week as compared to a normally-required frequency of quarterly.

As can be seen from the test data, no significant variation from the tests performed on June 3, 1988, has occurred. (Closed sample variance = 0.03 seconds.) Therefore, it appears the valve has operated normally. There is also no indication that the solenoid valve, 1 SC-953-S, contributed to the indicated mid-position found on July 12, 1988.

SYSTEM DESCRIPTIONS

This valve was manufactured by Valtek, Incorporated. It is a 1/2" (3/8" trim) stainless steel unbalanced 1500# globe valve, Model Mark II. The serial number for this valve and actuator is V27713.

The energy industry identification system component function identifier is SMU. The system name code for the sample valve for the reactor coolant system is AB.

GENERIC IMPLICATIONS

No generic implications were discovered during the investigation of this found condition.

REPORTABILITY

Other than the indication of mid-position on the remote control panel, no verification of actual valve mid-position or lack of capability for the valve to reach full closed was found. However, there is no way to prove a valid isolation signal would have closed the valve on July 12. Therefore, Valve 1 SC-953 was conservatively declared inoperable. Given that this valve is a series containment isolation valve, the possible inoperable status of the valve results in not meeting the definition of containment integrity since not all of the containment isolation valves were closed or operable.

Therefore, in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications," this report of a condition found is provided as a licensee event report.

CAUSE

The cause of the valve being indicated in mid-position is unknown. An inspection was made of the valve position switches and no malfunction or inappropriate movement of the switches or their mountings was found.

Stroke time testing of the valve noted above also proved operability of the three-way solenoid valve.

The sampling procedure for the pressurizer liquid space sample was somewhat deficient in that no express instructions were provided to ensure that 1 SC-953 was indicated closed after the completion of sample acquisition. Therefore, the procedure could be considered a secondary cause of the Technical Specification noncompliance.

SAFETY ASSESSMENT

The effect of this valve being in the mid-position is minor. Containment integrity should have been maintained during an accident due to the maintenance of the series isolation valve in the closed position. EOP-0, "Reactor Trip or Safety Injection," requires in Step 26 that the operator verify that containment isolation valves are shut. If he finds a valve indicating in mid-position (as happened on July 12), he is to shut the valve just the way the operator did on July 12.

1 SC-953 and 1 SC-966B are series isolation valves for the sample line from the pressurizer liquid space. During the period of time that 1 SC-953 was possibly partially open, 1 SC-966B was shut. 1 SC-966B is normally maintained shut except when actual samples are being taken. The control switch for Valve 1 SC-966B is in the control room and is operated by a licensed control operator. 1 SC-953 is operated by a radiation chemistry technician from a control panel in the primary auxiliary building during sample collection.

Since the containment was isolated, by virtue of the closed series valve, the health and safety of the public during an accident would not have been compromised because of this valve being in the open or partially-open condition.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Point Beach Nuclear Plant	0 5 0 0 0 2 6 6	8 8	— 0 0 6	— 0 0	6 OF 6

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

CORRECTIVE ACTIONS

The immediate corrective action was to close 1 SC-953. The intermediate-term corrective action was to increase the surveillance on the valve to ensure that the ability to close the valve was not compromised. The increased surveillance has been reduced somewhat due to the excellent repeatability of the valve close and open times and may be further reduced. A detailed inspection of the valve to try to identify the cause of the indicated mid-position was performed.

In the long term, the Chemistry procedure controlling the collection of samples will be revised to include a specific step to ensure that the sample valves controlled by Chemistry personnel are verified closed by indication after the completion of sample collection. The completion of the revision to the procedure controlling this sample acquisition will be accomplished by November 1988 and will reduce the probability of the valve being left in the mid-position.

SIMILAR OCCURRENCES

No occurrences of this type are known to have happened in the past at Point Beach Nuclear Plant.

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POWER COMPANY

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VPNPD-88-406
NRC-88-071

10 CFR 50.73

August 11, 1988

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

Gentlemen:

DOCKET 50-266
LICENSEE EVENT REPORT 88-006-00
SUSPECTED INOPERABILITY OF A
CONTAINMENT ISOLATION VALVE
POINT BEACH NUCLEAR PLANT, UNIT 1

Enclosed is Licensee Event Report 88-006-00 for Point Beach Nuclear Plant, Unit 1. This report is provided in accordance with 10 CFR 10 50.73(a)(2)(i), "Any operation or condition prohibited by the plant's Technical Specifications."

This report details the finding of a condition where a containment isolation valve which is part of the primary sample system was suspected of being inoperable and, therefore, not maintained in accordance with facility Technical Specifications.

If any further information is required, please contact us.

Very truly yours,

C. W. Fay
Vice President
Nuclear Power

Enclosure

Copies to NRC Resident Inspector
NRC Regional Administrator, Region III

IE22
1/1