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SUBJECT: LER 92-002-00:on 920113,determined that MSIV leakage control sys fan testing incorrectly performed.On 920127, determined that setpoint for pressure switch did not ensure proper sys operation.TS waiver obtained.W/920214 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

February 12, 1992
G02-92-037

Docket No. 50-397

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Washington, D. C. 20555

Subject: **NUCLEAR PLANT NO. 2**
LICENSEE EVENT REPORT NO. 92-002

Transmitted herewith is Licensee Event Report No. 92-002 for the WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Sincerely,

J. W. Baker
WNP-2 Plant Manager (Mail Drop 927M)

Enclosure:

cc: Mr. John B. Martin, NRC - Region V
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	1 OF 6

TITLE (4)

Main Steam Isolation Valve Leakage Control System Inoperable Due To Inadequate Testing And Calculations

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 NUMBERS(S)
										0 5 0 0 0
0 1	1 3	9 2	9 2	0 0 2	0 0	0 2	1 2	9 2		0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1	20.402(b)	20.405(C)	50.73(a)(2)(iv)	77.71(b)
POWER LEVEL (10) 1 0 0	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.73(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
D.A. Swank, Compliance Engineer	AREA CODE 5 0 9 3 7 7 - 4 4 5 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

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

ABSTRACT (16)

On January 13, 1992 it was determined that the Main Steam Isolation Valve Leakage Control (MSLC) system fan testing required by Technical Specification 4.6.1.4.c.2 was not correctly performed in that cfm was being measured and recorded instead of the required scfm. Additionally, on January 27, 1992 a Reportability Evaluation was completed and it was concluded that the setpoint for pressure switch MSLC-PS-25, the switch which provides automatic transfer of the Outboard MSLC train from the depressurization to the bleed mode of operation, did not ensure proper system operation.

A Technical Specification waiver was obtained to allow verification of MSLC fan operability at cfm instead of scfm. A Technical Specification Amendment request was submitted to change the fan testing requirement from scfm to cfm. Pressure switch MSLC-PS-25 was recalibrated using the information from the new setpoint calculation. Finally a Quality Action Team has been authorized to address potential improvements in Technical Specification compliance.

Abstract (cont.)

A review of the design basis flow requirements for MSLC showed that testing performed at 30 cfm provides assurance that the system is capable of performing its intended safety function. The improper setpoint for MSLC-PS-25 could have resulted in the Outboard MSLC train not functioning as designed. Post LOCA, if the Inboard MSLC train had not operated, failure of the Outboard MSLC train could have resulted in a small increase in the off-site dose. However, recent generic analyses show that the MSLC system may important to the control of off-site releases. This event involved only minor safety significance.

This event posed no threat to health and safety of either the public or Plant personnel.

Plant Conditions

Plant Mode - 1
Power Level - 100%

Event Description

Two instances have been identified where past Main Steam Isolation Valve (MSLC) system operability was invalidated. In the first, Technical Specification Surveillance Requirement 4.6.1.4.c.2 states that at least once per 18 months the fans on the Inboard and Outboard MSLC systems be verified to develop at least 17 inches of water gauge vacuum at a 30 scfm flow rate. These two fans, MSLC-FN-1 & 2, provide a vacuum condition in the main steam lines post-LOCA to direct any Main Steam Isolation Valve (MSIV) leakage to the Standby Gas Treatment (SGT) system. In response to NRC Resident Inspector inquiries, on January 13, 1992 it was determined that the surveillance procedure used to test the MSLC fans, PPM 7.4.6.1.4.3, recorded the flow rate in cfm without applying the density correction factors to obtain scfm values.

After detailed discussion and interaction with the NRC staff, on January 16, 1992 a Technical Specification waiver was requested by the Supply System and granted by the NRC. This waiver allows the MSLC fan test acceptance criterion to be set at 30 cfm instead of 30 scfm.

In the second instance, pressure switch MSLC-PS-25 which is the sensor that actuates to cause automatic transfer of the Outboard MSLC train from the depressurization mode to the bleed mode of operation through fan MSLC-FN-2 directly into the SGT system duct-work. This transfer is designed to occur at zero psig main steam line pressure. From the time of manual Outboard MSLC train initiation until the transfer occurs, the Outboard MSLC train depressurizes the main steam lines downstream of the outboard MSIVs to a normally unoccupied area in the Reactor Building serviced by the safety-grade SGT system. After transfer the MSLC fan takes suction on the main steam lines and discharges directly into the SGT system duct-work. On Monday January 27, 1992 a Reportability Evaluation was completed and it was concluded that, based on the results of a revised setpoint calculation for pressure switch MSLC-PS-25 performed by a contract engineer as part of a setpoint verification program, the previous setpoint for this switch did not ensure that the switch would trip under the worst case instrument drift assumptions. Hence, there was no assurance that the transfer from the depressurization to the bleed mode of operation for the Outboard MSLC train would have occurred.

Immediate Corrective Action

As discussed above, a Technical Specification waiver was requested and received from the NRC staff allowing continued operation with a 30 cfm flow rate at 17 inches of water gauge vacuum instead of 30 scfm.

On Friday January 24, 1992 with knowledge of the new MSLC-PS-25 setpoint calculation results and the potential impact on Outboard MSLC train operations, MSLC-PS-25 was re-calibrated using the new setpoint information. This resulted in the switch being set at a point which ensures the switch will actuate under postulated Plant accident conditions given the worst case instrument drift assumptions, thus ensuring Outboard train transfer to the bleed mode.

Further Evaluation and Corrective Action

A. Further Evaluation

As stated in the FSAR Questions and Answers section, the MSLC Inboard and Outboard train fans are sized to handle five times the design MSIV leakage. The Technical Specification allowable leakage for the MSIVs is 11.5 scfh per valve when tested at 25 psig, or a total of 46 scfh. Five times the allowable MSIV leakage is thus 230 scfh, or 3.83 scfm. The 30 cfm is approximately 27 scfm at typical MSLC system test conditions. The test results are thus very conservative compared to the design bases for the system. Both the surveillance procedure and the test procedure used to test the system during initial startup testing recorded cfm instead of scfm. These procedures did not correct the cfm readings for air density to obtain scfm. Therefore, the requirements of Technical Specification 4.6.1.4.c.2 were not met.

As part of the setpoint verification program at WNP-2, the setpoint for MSLC-PS-25 was re-calculated. The previous setpoint was zero inches water gauge (plus 1 inch, minus zero inches). The calculated inaccuracy of the loop was determined to be 2.67 inches water gauge. Therefore, the minimum setpoint which ensures proper operation of the Outboard MSLC train is +2.67 inches of water gauge. This was the setpoint used for the re-calibration on January 24, 1992. Since the previous setpoint did not ensure proper Outboard MSLC train operation, the train was not technically operable at all required times since initial startup.

The conditions described above constitute a failure to meet the surveillance requirements. Failure to meet the surveillance requirements is a condition prohibited by the Technical Specifications and is reportable per the requirements of 10CFR50.73(a)(2)(i)(B).

The root cause for the failure to test the MSLC fans to the Technical Specification scfm requirements were: 1) the change implementation process in place at the time did not provide for a verification that the change from cfm in the Standard Technical Specifications to scfm in the WNP-2 Technical Specifications agreed with the WNP-2 design; and 2) the surveillance procedure was less than adequate in that it contained technical inaccuracies which did not satisfy the Technical Specification requirements. The root cause for the unacceptable MSLC-PS-25 setpoint calculation was a deficient analysis in the original setpoint calculation.

No structures, systems, or components were inoperable prior to the start of this event that contributed to the event.

B. Further Corrective Action

The events identified in this LER occurred under old Technical Specification change management and procedure development processes. These processes have been modified over the years such that no additional programmatic changes are planned as a result of this event except as might result from the corrective actions discussed below.

1. As a long term corrective action, a Technical Specification Amendment request under emergency basis conditions was submitted to the NRC on January 21, 1992 to change the required flow rate test criterion for the MSLC fans from 30 scfm to 30 cfm. A review was also performed for other Technical Specifications which cite scfm to ensure the surveillance test procedures correctly addressed scfm. The results of this review are currently being evaluated.

2. As described above, the MSLC-PS-25 setpoint was re-calibrated on January 24, 1992 to meet the new setpoint requirements. This setpoint change was identified as part of an ongoing setpoint verification program. The procedure was deviated to reflect the new setpoint.

3. As documented in WNP-2 LER 91-013-02, a Quality Action Team has been authorized to address potential improvements in Technical Specification compliance.

Safety Significance

The use of 30 cfm instead of the Technical Specification required 30 scfm for acceptance test criterion when testing the MSLC system fans did not impact the systems ability to perform its intended safety function. The 30 cfm, which is approximately 27 scfm at normal surveillance test conditions, provides assurance that the fans and both trains of the MSLC system meet the design basis.

The old MSLC-PS-25 setpoint potentially impacted proper operation of the Outboard train of MSLC. If this switch had failed to actuate, the train would not have automatically transferred from the depressurization to the bleed mode of operation. Failure to automatically transfer would have resulted in the Outboard train continuing

to depressurize directly into a normally unoccupied area of the Reactor Building. The MSLC safety function would still have been fulfilled by depressurizing the main steam lines downstream of the outboard MSIVs directly to the Reactor Building. The Reactor Building is maintained at a negative pressure with monitored, filtered releases made through the safety grade SGT system.

The MSLC-PS-25 setpoint inaccuracy did not impact the Inboard MSLC train. Unless there is a gross leak through one of the inboard MSIV valves, the Inboard MSLC train would perform the MSLC function and the Outboard MSLC train would not be required to operate.

Recent generic analyses sponsored by the BWR Owners Group have shown that the MSLC system is not required to meet the 10CFR100 off-site dose limits. A lead plant has a pending amendment request with the NRC Staff to remove the MSLC system from their Technical Specifications. The purpose of this proposed amendment is to support removal of the MSLC system from the accident analyses. The MSLC system is currently credited for the control of off-site releases for the design basis LOCA.

Based on the evaluation discussed above, the MSLC conditions identified in this LER are considered to be of minor safety significance.

Similar Events

LER 87-026 reported an event where the setpoint calculation for the diesel fuel oil storage tank was incorrect. Corrective actions included changing the setpoint to ensure sufficient diesel fuel was available, and formation of a setpoint task force to review the setpoint process. LER 88-023 reported an event where the setpoint calculation for the SGT system pressure control setpoint was not properly calculated. Corrective actions included resetting the control setpoint, performing an engineering study of the secondary containment design basis, and reviewing the Technical Specifications to determine if there were other Technical Specification system control setpoints requiring changes. LER 91-013-02 described several instances where the surveillance procedures did not fully satisfy the Technical Specification requirements. As part of the corrective actions a Quality Action Team was authorized to address potential improvements in Technical Specification compliance at WNP-2. The work of this team is progressing.

EIIS Information

Text Reference	System	EIIS Reference Component
Main Steam Leakage Control	SB	-
MSLC-PS-25	SB	-
Standby Gas Treatment	SGT	-
MSLC-FN-1	SB	FAN
MSLC-FN-2	SB	FAN
Main Steam Isolation Valve	MS	ISV
Main Steam	MS	-