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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-026-00: on 920605, determined that MO of RHR train "A" may have prevented full closure of drywell spray supply valve. Caused by inadequate testing of plant equipment. MO repaired & tested to perform design function. W/920701 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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July 1, 1992
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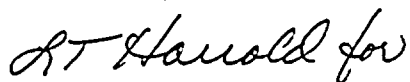
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**SUBJECT: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 92-026**

Transmitted herewith is Licensee Event Report No. 92-026 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)

JWB/REF/cgeh
Enclosure

cc: Mr. J. B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (Mail Drop 901A, 2 Copies)
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 9 7	PAGE (3) 1 OF 5
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TITLE (4)
SPRING PACK GAP ON MOTOR OPERATOR MAY HAVE PREVENTED FULL CLOSURE OF DRYWELL SPRAY SUPPLY 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 NUMBERS(S)						
0	6	0	5	9	2	9	2	0	0	2	6	0	0	0	0	0	0

OPERATING MODE (9) **5** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)

POWER LEVEL (10) 0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	77.71(b)
	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 R. E. Fuller, Compliance Engineer	TELEPHONE NUMBER AREA CODE 5 0 9 3 7 7 - 4 1 4 8
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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) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (16)

On June 5, 1992, Plant Technical personnel determined that the motor operator of Residual Heat Removal (RHR) Train "A" Drywell spray supply valve (RHR-V-17A) may have not fully closed the valve under design basis conditions. A deficiency associated with torque switch actuation was identified during removal and refurbishment of the motor operator (RHR-MO-17A) on May 13, 1992, by Supply System Maintenance personnel. Refurbishment was being done as a portion of the Motor Operated Valve (MOV) test program. This program is to ensure valve operability under design conditions in response to Generic Letter 89-10.

The root cause of this condition is inadequate testing of Plant equipment to identify this condition.

No immediate corrective actions were required since the Plant was in the Refueling mode and the containment isolation function was not required.

Motor operator RHR-MO-17A has been repaired and tested to assure it can perform its design function.

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										9	2	0	2	6	0	0	
TITLE (4)		SPRING PACK GAP ON MOTOR OPERATOR MAY HAVE PREVENTED FULL CLOSURE OF DRYWELL SPRAY SUPPLY VALVE															

Valve RHR-V-17A with the deficiency present has never failed stroke time testing or leak rate testing. The outboard isolation valve RHR-V-16A, in series with RHR-V-17A, was available and capable of performing its safety function. In addition, there was no event that occurred during the time this condition existed that required RHR-V-17A to perform its isolation function. Therefore, this condition is considered to have negligible safety significance.

Plant Conditions

Power Level - 0%
Plant Mode - 5 (Refueling)

Event Description

On June 5, 1992, Plant Technical personnel determined that a spring pack gap in the motor operator of Residual Heat Removal (RHR) Train "A" Drywell spray supply valve (RHR-V-17A) may have prevented full closure under design basis conditions. The gap was identified during removal and refurbishment of the motor operator (RHR-MO-17A) on May 13, 1992, by Supply System Maintenance personnel. Refurbishment was being done as a portion of the Motor Operated Valve (MOV) test program. This program is to ensure valve operability under design conditions in response to Generic Letter 89-10.

Valve RHR-V-17A is one of two valves in series which is remote manually operated from the Control Room to initiate Drywell spray, and is closed to terminate spraying. The valve also serves a Primary Containment isolation function.

During the disassembly of valve motor operator RHR-MO-17A, a gap was found between the spring pack thrust washer and the spring cartridge cap lock nut. This gap would allow some movement of the spring pack without compressing the springs. Movement of the spring pack without spring pack compression results in movement of the torque switch with little or no stem thrust. This would allow premature opening of the torque switch causing the motor to de-energize at a lower stem thrust than is required for the valve to close against design differential pressure.

Immediate Corrective Action

No immediate corrective actions were required. The Primary Containment isolation function of RHR-V-17A was not required since the Plant was in the Refueling Mode.

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TITLE (4) SPRING PACK GAP ON MOTOR OPERATOR MAY HAVE PREVENTED FULL CLOSURE OF DRYWELL SPRAY SUPPLY VALVE														

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is considered reportable per 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the Plant's Technical Specifications. Valve RHR-MO-17A had not been disassembled since it was originally installed. It is not possible to determine if the gap had existed since original installation or if the lock nut had loosened over time. Therefore, the valve may not have been able to perform its containment isolation function under the design basis differential pressure conditions since it was installed.
2. There were no structures, components, or systems inoperable prior to the discovery of the condition which contributed to the condition.
3. Valve RHR-V-17A is required to open when remote manually operated from the Control Room to initiate Drywell spray. Since the torque switch is physically jumpered out in the open direction, the gap in the spring pack cavity has no effect on the Drywell spray safety function.

Valve RHR-V-17A is required to close against design differential pressure and provide adequate sealing for containment isolation. The torque switch is adjusted to a value that will de-energize the motor when the spring pack compresses to a point that represents the required stem thrust value. This thrust value is selected to ensure the valve would fully close under the design differential pressure while avoiding excessive force, which could damage the valve.

- When the spring pack moves without compressing, this effectively reduces the torque switch setting. Therefore, the torque switch will de-energize the motor at a stem thrust value below the thrust required to perform the isolation design function.
4. The required quarterly stroke time testing and annual Local Leak Rate Testing (LLRT) for the valve have been performed with satisfactory results. However, these tests would not be expected to identify the spring pack gap problem. Previous testing methods were inadequate to identify the spring pack gap in RHR-MO-17A.

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5. The root cause of this condition is in the category of **Plant/Equipment** and subcategory of **Maintenance and Testing** in that **Inadequate Testing Methods** were used. The spring pack gap in RHR-MO-17A may have been present since original installation or may have developed over time. Testing methods used after installation and for periodic testing since installation were inadequate to identify this problem. Load testing had never been performed on this valve since its installation.
6. New testing methods implemented as part of the MOV program would identify and correct this type of problem. Diagnostic testing of RHR-V-17A had not been performed with the new testing methodology before the problem was discovered. The MOV program is on-going and is expected to detect service-induced degradations of this type in the unlikely event that they occur. The MOV program will continue to systematically inspect and test safety-related valves per Supply System commitments in response to Generic Letter 89-10.
7. To date approximately 85 percent of WNP-2 safety-related MOVs have been refurbished and tested. This is the only known incident where a significant spring pack gap was discovered.

B. Corrective Action Taken

Motor operator RHR-MO-17A has been repaired and tested to assure it can perform its design function.

C. Further Corrective Action

No further corrective actions were identified.

Safety Significance

Valve RHR-V-17A is normally closed, and is only opened for testing and in the unlikely event of a LOCA. This valve is the inboard isolation valve. The outboard isolation valve, RHR-V-16A, would have performed its safety function and provided containment isolation for the line. The RHR-V-16A was load tested in 1991 along with stroke time testing and LLRT with satisfactory results. The valve would have performed its safety function. In addition, the two valves are interlocked such that both valves cannot be opened simultaneously unless conditions are present that may necessitate use of the Drywell sprays. This ensures containment isolation is not inadvertently breached or the Drywell spray is not inadvertently actuated. The electrical design and the physical size of the operator are such that the valve may have closed far enough under the designed differential pressure to perform the required containment isolation function. The RHR "B" train Drywell spray valves, RHR-V-16B and RHR-V-17B, were tested under the

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MOV program in 1991 and 1992, respectively, with satisfactory results. In addition, there was no event that occurred during the time this condition existed that required RHR-V-17A to perform its isolation function. Therefore, this condition is considered to have negligible safety significance.

Similar Events

Two similar events were identified related to inadequate thrust on the valve. LER 88-017-01 describes a condition on the outboard isolation main steamline drain valve MS-V-67B where the torque switch cam block could bind on its steel shaft causing premature torque switch actuation. LER 89-041 describes a condition in which the motor operator to RHR-V-40 would not develop sufficient thrust under 80 percent degraded voltage conditions to close the valve at the expected differential pressure. The resolution to the low thrust problems described above were not expected to have precluded or provided earlier identification of the deficiency found in RHR-V-17A.

EIIS Information

Text Reference

RHR/Containment Spray
Main Steam System

EIIS Reference

<u>System</u>	<u>Component</u>
BO	ISV
SB	ISV

