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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 94-004-00: on 940307, two in-series containment isolation valves, MS-V-16 & V-19, had been inoperable. Cause was ambiguous wording in an operability assessment. Corrective action: procedure modified & training provided. W/940406 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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April 6, 1994
G02-94-078

Docket No. 50-397

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: **NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 94-004-00, REVISION 0**

Licensee Event Report No. 93-004-00 is attached. This report discusses a failure to declare two containment isolation valves inoperable and to take the required actions. These valves remained closed throughout this event.

If you have any questions or desire additional information regarding this matter, please contact me or H.E. Kook at (509) 377-4278.

Sincerely,


J.V. Parrish (Mail Drop 1023)
Assistant Managing Director, Operations

JVP/DAS/bk
Enclosure

cc: Mr. K. E. Perkins, Jr., NRC - Region V
Mr. R. Barr, NRC Resident Inspector (Mail Drop 927N, 2 Copies)
INPO Records Center - Atlanta, GA
Mr. D. L. Williams, BPA (Mail Drop 399)
Mr. N. S. Reynolds - Winston & Strawn

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2) 05000397	PAGE (3) 1 OF 5
TITLE (4) Containment Isolation Valve Technical Specification Actions Not Met		

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)		
03	07	94	94	004	00	04	06	94	N/A			05000		
												05000		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)									
POWER LEVEL (10) 98	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405c	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> OTHER [Specify in Abstract below and in Text, NRC Form 386A]						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)A							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)B							
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)							

LICENSEE CONTACT FOR THIS LER (12) Dave Swank, Licensing Engineer								TELEPHONE NUMBER AREA CODE 509 377-4563			
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)														
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
N/A														

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 March 7, 1994 it was determined that two in-series containment isolation valves, MS-V-16 and MS-V-19, had been inoperable since December 17, 1993 but the appropriate Technical Specification required actions had not been identified and performed. The immediate corrective action was to de-energize these normally closed valves in the closed position. The root cause of this event was ambiguous wording in an operability assessment performed in December, 1993. Contributing causes to this event were inadequate training of support personnel relative to equipment operability, and POC's failure to identify the need to declare the valves inoperable. Plant procedures will be modified to require a clear and concise statement of operability for each piece of equipment being addressed in an operability assessment. Additional training will be provided for those personnel that would generally be expected to perform operability assessments. This training will enhance personnel understanding of operability and the expectations for clear, easily identified operability conclusions within these assessments. Expectations for POC performance were distributed to the POC members on February 16, 1994, and this issue was discussed at the April 6, 1994 POC meeting.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Washington Nuclear Plant - Unit 2	0	5	0	0	0	3	9	7	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF	5
									94	-004	-00			

TEXT (17)

Plant Conditions:

Power Level - 98%
 Plant Mode - 1 (Power Operation)

Event Description:

On March 7, 1994, a manager in the Engineering Directorate determined, based on engineering calculations, that Main Steam drain valves MS-V-16 and MS-V-19 were incapable of performing their intended function and had not been declared inoperable. These valves serve a containment isolation function.

Immediate Corrective Action:

At 2122 hours on March 7, 1994 both valves were declared inoperable and de-energized in the closed position in accordance with Technical Specification requirement 3.6.3.a.2.

Further Evaluation:

This event is reportable pursuant to the requirements of 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications. From December 17, 1993 through March 7, 1994, MS-V-16 and MS-V-19 were inoperable but the actions required by Technical Specification 3.6.3 had not been taken.

On December 16, 1993, based on the results of revised engineering calculations for motor operated valves, the potential performance under design basis conditions for nine valves was called into question. This concern was documented on Problem Evaluation Request 293-1416 on December 16, 1993. A detailed operability assessment for these nine valves was performed based on the valve design requirements and plant conditions. On December 17, 1993, it was concluded that seven of the nine valves in question were operable. For MS-V-16 and MS-V-19, the operability assessment documented the conclusion that the valves were inoperable until the torque switches were reset. However, the wording of the assessment was ambiguous and confusing.

Plant personnel, including the Plant Operations Committee (POC) that approved the operability assessment on December 17, 1993, incorrectly concluded that MS-V-16 and MS-V-19 were operable in the as-installed configuration. This incorrect conclusion was caused by the ambiguity of the wording in the operability assessment.

On March 7, 1994, a manager in Engineering, in responding to a request for information from Quality Assurance, recognized that the wording in the operability assessment could be misunderstood. He contacted the control room to verify that the valves had been declared inoperable in December, 1993. They had not. He informed the on-duty Operations personnel

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3	OF	5
		94	- 0 0 4	- 0 0			

TEXT (17)

that MS-V-16 and MS-V-19 were not capable of performing their intended safety function based on calculational results. Operations declared the valves inoperable. The immediate corrective actions identified above were taken.

Root Cause:

The root cause of this event was the unclear wording in the operability assessment. This wording led people to draw different conclusions about the operability of MS-V-16 and MS-V-19. No clear, concise statement regarding the operability of these two valves was provided in the operability assessment.

A contributing cause of this event was inadequate training on equipment operability. A clear understanding of operability and the requirement to meet the Technical Specification actions is not exhibited by some support personnel. This lack of understanding led to confusion by these personnel as to whether the two valves were operable since they were closed and thus performing their intended safety function. These support personnel did not know that the valves are required to be closed and de-energized if they are not capable of automatically closing on receipt of an isolation signal.

A second contributing cause for this event was the failure of POC to recognize the discrepancy of the need to change the valve settings verses current operability, and to arrive at the decision that the valves were inoperable. An interoffice memorandum was distributed to the POC members on February 16, 1994 describing the expectations for POC members and the presenters providing information to POC. In addition, this issue was reviewed at the POC meeting on April 6, 1994. No further corrective actions are planned for POC as a result of this event.

Further Corrective Actions:

Plant procedures will be modified to require a clear and concise statement of operability for each piece of equipment addressed in an operability assessment. Each piece of equipment will either be classified as "operable" or "inoperable." Any condition statements needed to clarify the operability will be provided separately from the clear statement of operability. This procedure modification will be completed by May 31, 1994.

Additional training will be provided to Engineering Directorate and Technical Services Division personnel that would be expected to perform operability assessments. This training will enhance personnel understanding of operability and the expectations for clear, easily identified operability conclusions within these assessments. This training will be completed by August 31, 1994.

Safety Significance:

The safety significance of this condition was negligible. MS-V-16 and MS-V-19 are normally closed valves that are administratively maintained in the closed position above 5% power. These

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Washington Nuclear Plant - Unit 2	0	5	0	0	0	3	9	7	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4	OF	5
									94	- 004	- 00			

TEXT (17)

valves are tested on a quarterly frequency, but they are opened one at a time so that the piping and containment remain isolated throughout the testing.

The plant operated above 5% power continuously from December 17, 1993, when evidence existed to show the valves were not capable of performing their intended function, through March 7, 1994 when the valves were declared inoperable. MS-V-16 and MS-V-19 are used to warm up the main steam lines downstream of the Main Steam Isolation Valves (MSIVs) and to equalize the pressure across the MSIVs to support MSIV opening. These valves are also opened post scram with a coincident MSIV isolation to support re-opening of the MSIVs. Since MS-V-16 and MS-V-19 were not declared inoperable in December, 1993, it is possible they could have been opened to support re-opening of the MSIVs. The planned changes for these two valves were scheduled for the next forced or scheduled outage. Thus, these two valves would have been returned to operable status prior to the start-up from the next forced or scheduled outage.

MS-V-16 and MS-V-19 are required to close to mitigate the consequences of a High Energy Line Break (HELB) or Loss Of Coolant Accident (LOCA). Had these valves been opened to support re-opening of the MSIVs following an MSIV isolation, they potentially could have failed to perform their safety function under the following coincident conditions:

- 1) The plant has scrammed with a coincident MSIV isolation,
- 2) MS-V-16 and MS-V-19 are open to equalize pressure across the MSIVs
- 3) A design basis LOCA occurs requiring containment isolation, and
- 4) Either MS-V-16 or MS-V-19 fails to operate for a reason unrelated to the torque switch setting. The best engineering judgement is that if both valves attempt to close on an automatic or manual isolation signal, neither valve would experience the total differential pressure across the valve disk. Both valves would have gone completely closed if both valves started to close since the lower disk friction at the reduced differential pressure across each valve would not have been sufficient to prevent closure.

The plant spends a limited amount of time with MS-V-16 and MS-V-19 open to equalize around isolated MSIVs. The probability of an isolation of the MSIVs is 0.2 events per year. The probability of a LOCA at WNP-2 is 8×10^{-3} per year (WNP-2 plant specific data). The combined probability of a failure to operate for either of these two valves is 4×10^{-4} per year (generic valve failure data). The chances of a LOCA, coincident with having MS-V-16 and MS-V-19 open for equalization around isolated MSIVs, and coincident with failure of one of the two valves to operate, is small. This condition is thus deemed to have posed no threat to the health and safety of plant personnel or the public.

Similar Events:

A review of events that occurred since January, 1993 identified a single event where control room personnel were not notified that plant equipment was not capable of performing the intended safety function even though non-operations personnel could have had evidence of that fact. LER

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Washington Nuclear Plant - Unit 2

0|5|0|0|0|3|9|7

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
94	- 0 0 4	- 0 0

5 | OF | 5

TEXT (17)

93-001 describes an event for which the Residual Heat Removal (RHR) system was rendered inoperable while in the suppression pool cooling mode. This inoperability was not recognized because of inadequate review of NRC Information Notice IN 87-10, which described a potential RHR train failure due to water hammer under certain accident conditions.

EIIS Information

Text Reference

EIIS Reference

<u>System</u>	<u>Component</u>
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MS-V-16 and MS-V-19

SB	ISV
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motor operator

SB	--
----	----

torque switch

SB	--
----	----

Main Steam Isolation Valves (MSIVs)

SB	ISV
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Residual Heat Removal (RHR)

BO	--
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