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 REIS,M.P. Washington Public Power Supply System
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-030-01:on 901117,discovered that outboard RCIC turbine steam supply isolation valve,RCIC-V-8 returned to svc w/unacceptable stroke time due to inadequate procedures. Valve RCIC-V-8 stroke time changed.W/910329 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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P085600M

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

March 29, 1991
602-91-061

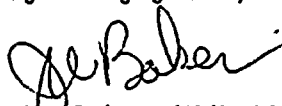
Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 90-030-01

Dear Sir:

Transmitted herewith is Licensee Event Report No. 90-030-01 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.

Very truly yours,


J. W. Baker (M/D 927M)
WNP-2 Plant Manager

JWB:lr

Enclosure:
Licensee Event Report No. 90-027

cc: Mr. John B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (M/D 901A)
INPO Records Center - Atlanta, GA
Mr. D. L. Williams, BPA (M/D 399)
NRC Resident Inspector - walk over copy

P085600111

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Washington Nuclear Plant - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 3 9 7 1										PAGE (3) OF 0 5			
TITLE (4) Technical Specification Violation When Reactor Core Isolation Cooling Steam Supply Valve Returned to Service with Stroke Time Too Long																							
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)									
1	1	7	9	0	0	0	3	0	0	1	0	3	2	8	9	1	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)																					
POWER LEVEL (10)		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)									
9		20.405(a)(1)(i)				50.38(c)(1)				50.73(a)(2)(v)				73.71(c)									
4		20.405(a)(1)(ii)				50.38(c)(2)				50.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 355A)									
		20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(vii)(A)													
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(vii)(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													
Mark P. Reis, Compliance Engineer										5 0 1 9 3 7 1 7 - 2 3 8 1 5													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS													
A	B	N	V	Y	Q 8 5	YES																	
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 November 18, 1990, during review of completed corrective maintenance, Plant Operators and the Shift Technical Advisor discovered a condition which violated WNP-2 Technical Specifications. That review found that the four inch outboard containment isolation valve for the Reactor Core Isolation Cooling (RCIC) turbine steam supply, RCIC-V-8, had been returned to service with an unacceptable stroke time. The prior decision to return the valve to service was predicated on an incomplete understanding regarding the effectiveness of recent corrective maintenance. When the error was discovered, Plant Operators isolated the affected penetration and entered the appropriate LCO action statements. These events were determined to be reportable on November 20, 1990 following Technical Staff review.

The root cause of this condition was determined to be less than adequate procedures in that existing guidance did not address this situation in which the maintenance work package was closed by issuing a plant problem report. Contributing factors related to equipment design, interpersonal communication and the understanding of "operability decision making" were identified.

Corrective actions include: a completed design change to reduce valve stroke length, a commitment to perform a design evaluation of RCIC-V-8 valve and motor application, procedure revisions and associated training to clarify management expectations regarding the use of plant problem reports to close work packages and the disposition of relevant problems prior to declaring equipment operable.

This event did not present a threat to Plant Personnel or to the Public.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

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

Plant Conditions

- a) Plant Mode - 1 (Power Operations)
- b) Power Level - 94%

Event Description

On November 16, 1990, during performance of a routine surveillance procedure, Operations personnel discovered that the outboard Reactor Core Isolation Cooling (RCIC) turbine steam supply isolation valve, RCIC-V-8, had an unacceptable closing time of 10.6 seconds. Since the closing time was in the Required Action Range (ASME Pump and Valve Inservice Test Program criteria) specified in the Technical Specification surveillance procedure, the valve was declared inoperable. With RCIC-V-8 inoperable, the RCIC system is also considered inoperable. Plant Operators correctly entered Technical Specification LCO Action statements 3.7.3 (RCIC system - 14 day LCO) and 3.6.3.a.2 (Primary Containment Isolation Valves - 4 hour LCO) and closed the RCIC turbine steam supply inboard isolation valves RCIC-V-63 and RCIC-V-76.

On November 17, 1990, work performed by electrical maintenance personnel on RCIC-V-8 changed the stroke time to 10.14 seconds (as measured in the field) but resulted in the as-left closed position indication limit switch setting being out-of-tolerance with respect to design documents (RCIC-MO-8 Motor Operated Valve Master Data Sheet). The Master Data Sheet requires the full closed indication to actuate at 98 +/- 2% of valve stroke in the closed direction. The as-left full-closed indication setting was reported to be 94%, which corresponded to a 9.9 second closing time as measured in the Control Room. However, the altered limit switch setting changed only the stroke time as indicated in the Control Room. Since the limit switch which actuated the position indication did not control valve motive power, the actual valve stroke time was still too long. (Acceptance Criteria is 10.0 seconds.) Maintenance personnel recognized that further work under the existing work instructions would not result in compliance with both the Master Data Sheet and the specified stroke times. They documented this condition using normal plant problem reporting methods but did not offer any further information or opinions regarding the serviceability of the valve. With an indicated stroke time within specified criteria and not fully appreciating the relationship between the limit switch settings and actual stroke times, Operations personnel declared RCIC-V-8 and the RCIC system operable. Technical Specification action statements were exited at 1503 hours.

On November 18, 1990 Plant Operators and the Shift Technical Advisor reviewed the corrective action performed on the limit switch and concluded that RCIC-V-8 and, hence, the RCIC system, should still be considered inoperable.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

Immediate Corrective Action

At 2034 on November 18, Operations entered Technical Specification LCO Action statements 3.7.3 (RCIC system - 14 day LCO) and 3.6.3.a.2 (Primary Containment Isolation Valves - 4 hour LCO) and reclosed the RCIC turbine steam supply inboard isolation valves.

Further Evaluation and Corrective ActionA. Further Evaluation

1. This LER documents this event as reportable per the requirements of 10CFR50.73(a)(2)(i)(B) as a condition "prohibited by the Plant's Technical Specifications". LCO action statement 3.6.3.a.2 requires isolation of the affected containment penetration with at least one deactivated automatic isolation valve secured in the isolated position within four hours. The RCIC turbine steam supply line penetration was not operable or appropriately isolated for approximately 30 hours.
2. There were no structures, systems or components that were inoperable at the start of this event which contributed to this event.
3. The root cause for this event was determined to be less than adequate procedures. Specifically, guidance was not present to instruct Maintenance and Operations in the proper course of action for using a Problem Evaluation Report (PER) to close out a work package.

Equipment design was identified as a contributing cause. RCIC-V-8 was originally specified and purchased to have a closing time of 13 seconds. For environmental qualification reasons the stroke time was reduced to 10 seconds, which is very difficult to meet with the existing hardware and previously has caused testing and maintenance problems. Another contributing cause involved interpersonal communications. Maintenance personnel could have provided more assistance to the Shift Manager in evaluating the documented discrepancy's effect on valve operability. Both Operations and Maintenance could have requested additional technical assistance in resolving the impact of the discrepancy. A third contributing cause identified is inadequate training for Maintenance, Technical Staff and Design Engineering personnel in the area of "operability decision making" and their role in that process.

4. Evaluation of Motor Operated Valve Analysis and Test System (MOVATS) stroke time methodology indicates that these times are somewhat conservative since they include the time for the valve to "torque out" after reaching the 100% closed position. For valves with short stroke times, a small time increment can be significant when calculating percent closed and in meeting acceptance criteria. In this case, a 0.15 second "Torque Out" time made the difference between acceptance and failure. The valve was physically fully closed within 10 seconds ($10.14 - 0.15 = 9.99$ sec).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

B. Further Corrective Action

1. On November 20, 1990, based on engineering analysis, RCIC-V-8 stroke length was changed to provide both satisfactory stroke times and adequate steam supply for the RCIC turbine under all required operating conditions.
2. A design evaluation will be performed to evaluate adequacy of the existing RCIC-V-8 operator and valve for its current application.
3. Management expectations regarding the use and processing of PER's employed to close out work packages will be developed and communicated to appropriate maintenance and operations personnel.
4. The Maintenance Work Request (MWR) procedure is to be revised to:
 - a) include instructions for issuance of a PER for documenting discrepancies/problems in completing MWR work packages.
 - b) include a CAUTION statement that provides instruction on the proper use of a PER in the Post Maintenance/Modification process of closing a MWR.
 - c) clarify the required process for dispositioning a PER prior to the declaring a system or component operable.
5. Operations personnel will be trained regarding the changes in the MWR procedure identified in Corrective action 4. above.
6. Maintenance engineers and supervisors will receive training in the 10CFR50.59 evaluation process (20 hours) and in Technical Specifications (4 hours) to increase their understanding of the concept of "operability".

Safety Significance

1. This event posed minimal safety significance. RCIC-V-8 close stroke time was still too slow by 0.14 seconds (MOVATS data) when it was erroneously returned to service, since the corrective action preformed on the position indication limit switches did not change actual valve stroke time. No demands were made on the system during that time.
2. The isolation time (10 seconds) prescribed in the surveillance procedure and in the FSAR is derived from equipment qualification analysis. For off-site dose calculation (i.e. normal containment isolation function), a closure stroke time of up to 13 seconds would be acceptable. The surveillance procedure uses the more restrictive criterion in accordance with NRC Generic Letter 89-04 "GUIDANCE ON DEVELOPING ACCEPTABLE INSERVICE TESTING PROGRAMS".

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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3. In the event that a system initiation had been required, the slow stroke condition by itself was not enough to result in failure of the RCIC system to perform its function or failure of the valve to perform its safety (isolation) function. (Note: RCIC-V-8 is open when the system is in its standby alignment.) To have any impact during an accident condition, slow valve closure must occur in conjunction with a RCIC steam line break in the reactor building. Further the MOVATS data trace for RCIC-V-8 shows that the "torque out" time is approximately 0.15 seconds. Hence the valve was physically fully closed within the 10 second limit. The additional torquing contributes little to the valve's flow blocking function.
4. This event did not challenge the integrity of the RCIC steam supply line or challenge the qualification of equipment potentially exposed to a postulated RCIC steam line break.
5. This event did not present a condition which significantly impacted any safety function. As such, this event posed no threat to the safety of Plant Personnel or the Public.

Similar Events

LER 90-016 documents an event in which RCIC-V-8 stroke time was too slow and inappropriate corrective action (increasing DC voltage to the operator) was relied upon to attain satisfactory stroke times and to declare the valve operable. LER 90-016 was required reading for all licensed operators at WNP-2. Additional corrective action included counselling of involved individuals, training of Operations Staff on the ASME Pump and Valve Inservice Test program, and discussion of the event with the Compliance staff and Shift Technical Advisors. Corrective action training was being implemented at the time of the November event.

EIIS InformationText ReferenceEIIS Reference

	<u>System</u>	<u>Component</u>
RCIC System	BN	---
RCIC-V-8	BN	V
RCIC-V-63	BN	V
RCIC-V-76	BN	V
RCIC-MO-8	BN	MO

