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SUBJECT: LER 89-029-00:on 890703,RWCU & RCIC sys isolations caused by inadequate test/surveillance procedure.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

August 1, 1989

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 89-029

Dear Sir:

Transmitted herewith is Licensee Event Report No. 89-029 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,

C M Powers

C.M. Powers (M/D 927M)
WNP-2 Plant Manager

CMP:lg

Enclosure:
Licensee Event Report No. 89-029

cc: Mr. John B. Martin, NRC - Region V
Mr. C.J. Bosted, NRC Site (M/D 901A)
INPO Records Center - Atlanta, GA
Ms. Dottie Sherman, ANI
Mr. D.L. Williams, BPA (M/D 399)

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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

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 0 4

TITLE (4) Reactor Water Cleanup and Reactor Core Isolation Cooling System Isolations caused by Inadequate Test/Surveillance Procedure

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	0 3	8 9	8 9	0 2 9	0 0	0 8	0 1 8 9			0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 8 3	20.402(b)	20.405(c)	X 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)	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
	AREA CODE
C.L. Fies, Compliance Engineer	5 0 9 3 7 7 - 2 0 3 9

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 (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On July 3, 1989 at 1022 hours a Reactor Water Cleanup (RWCU) System Isolation occured when RWCU-V-1 closed as part of a Group 7 Nuclear Steam Supply Shutoff System (NS4) isolation. At 1026 hours a similar Reactor Core Isolation Cooling (RCIC) System isolation occurred when RCIC-V-63 closed. Both these isolations occurred as a result of Technical Specification Surveillance Testing per Plant Procedure 7.4.3.2.1.6, Leak Detection Monitor Division II Channel Calibration (CC)/Channel Functional Test (CFT).

The root cause of this ESF actuation was less than adequate preparation and review of a surveillance test procedure which had been rewritten to support a plant modification. This modification had recently been completed during a refueling outage.

Immediate corrective action consisted of prompt action by the plant operators to return the impacted systems to service. The surveillance test procedure was also corrected and deviated.

Further corrective action will be taken by plant maintenance to strengthen their procedure modification process. In addition, testing and project management procedures will be modified to require, when practical, a more complete check of the modified surveillance prior to plant operation and to allow more time for review and preparation of procedures associated with outage work.

Since all ESF systems responded as designed there is no safety significance associated with this event.

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

Plant Conditions

a) Power Level - 83%
b) Plant Mode - 1 (Power Operation)

Event Description

On July 3, 1989 at 1022 hours and again at 1026 hours primary containment isolation valves closed on an isolation signal. Both these events occurred during power ascension following the fourth refueling outage. The first event, a Reactor Water Cleanup (RWCU) System Isolation occurred when RWCU-V-1 (the inboard containment isolation valve between the reactor vessel and the RWCU System) closed on an NS^4 RWCU area high temperature simulated signal causing the operating pump (RWCU-P-1A) to trip. Plant Operators immediately began an investigation into the cause of the isolation which can be the result of any of several events. During their investigation, at 1026 hours, a Reactor Core Isolation Cooling (RCIC) System Isolation occurred on an RCIC Pump Room High Temperature simulated signal causing RCIC-V-63 to close. At that time plant operators traced both isolations to Technical Specification Surveillance (TSS) Testing on the Leak Detection System which had been in progress since 0729 hours. The specific test being performed was TSS 7.4.3.2.1.6, Leak Detection Monitor Division II Channel Calibration (CC)/Channel Functional Test (CFT) for Leak Detection Monitors LD-MON-1B and LD-MON-2B. The Instrument and Control (I&C) Technicians had completed Section "A" of the procedure which calibrates LD-MON-1B, and were proceeding with Section "B" which tests the relay trip logic on LD-MON-1B. Steps 1 and 2 of Section "B" of the procedure required bypass key locks for LD-RMS-S3C, LD-RMS-S3D and LD-RMS-S4B, to be in the test position. The test position should have placed the downstream trip logic for LD-MON-1B in a configuration where relays "K1B" and "K2B" could be tested without an ESF actuation. The I&C Technicians, following procedures as written, proceeded through step 10 of the procedure which simulated a high temperature in the RWCU pump and heat exchanger areas, places the leak detection "K1" relay in the "Trip" condition and tests for the proper functioning of the downstream "K1B" relay. With these steps complete they proceeded with steps 11 through 15 of the procedure which simulates a high RCIC Equipment Area or Differential Temperature, places the Leak detection "K2" relay in the "trip" condition and tests for proper functioning of the downstream "K2B" relay. The Control Room Operators stopped the surveillance testing at this time since it had obviously caused the isolations.

Immediate Corrective Action

Investigation by the Plant Operators and I&C Technicians revealed that the wrong switches had been called out in Steps 1 and 2 of Section "B" of the procedure. Consequently the testing of LD-MON-1B caused the RWCU and RCIC isolation. The switches identified were those needed for Section "E" of the procedure and were associated with LD-MON-2B. The procedure was deviated to call out the correct switches, LD-RMS-S1B and LD-RMS-S2B. Part B of the procedure was then completed successfully. The entire surveillance was successfully completed at 1627 hours.

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

The RCIC System was returned to Standby Status at 1039 hours. The RWCU system was brought back into service at 1515 hours after the required verification of pump bowl temperatures prior to pump restart. There was a delay in gaining access to the RWCU pump room caused by an inadvertently removed step off pad.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is being reported per the requirements of 10CFR50.73(a)(2)(iv) as an "event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF). . . . . "

2. There were no structures, components or systems that were inoperable at the start of this event that contributed to the event.

3. The root cause of this event was less than adequate attention to detail in the preparation and review of the surveillance procedure. A contributing factor was the fact that the surveillance procedure was drafted and reviewed during the outage when schedule and time constraints are very intense.

   a) The initial draft of the procedures by the Project Engineer had the correct by-pass switches called out for LD-MON-1B. A subsequent revision to the draft by the I&C Engineer caused the incorrect switches to be placed in Section "B" of the procedure.

   b) Reviews of this revision by the Project Engineer and the I&C Engineers did not discover the deficiency in Section "B". A contributing factor to this less than adequate review was the ongoing outage which started in mid April when the I&C Engineers had a large number of competing outage tasks to perform.

   c) Temporary Test Procedure 8.3.139, WNP-2 Leak Detection Monitor Preoperational Test was written in May 1989 to check out operation of the NUMAC Leak Detection Monitors being installed during the refueling outage. The test included the performance of TSS Test 7.4.3.2.1.6 as part of its procedure. The test was completed on June 10, 1989 without discovering the error associated with the bypass switches associated with LD-MON-1B. A review of the test showed that the procedure calls for the bypassing of all ten isolation functions associated with the Leak Detection System. These bypasses were in place prior to and during the performance of the surveillance test part of the procedure. Thus, individual operation of the bypass switches in the manner they were intended to be used in the subsequent surveillance were not verified during the performance of the test.

   d) The review of the surveillance contained in the test procedure should have identified and corrected the error with the bypass switches.

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

B. Further Corrective Action

1. Maintenance Engineers will receive additional training on the use of the "Maintenance Department Procedure Writers Guide."

2. Plant Procedure PPM 1.5.7, Post Maintenance/Modification Testing will be modified. Where practical, in situations where a plant modification results in a change to an Operations or Surveillance Test it will be performed as a Section of the preoperational test.

3. Project management procedures (1.16 Series) will be modified to require more advance planning for plant modification work. Where practical, draft revisions to test and surveillance procedures will be scheduled and completed prior to the start of the refueling outage. This will provide improved management visibility of the procedure/software modification workload allowing appropriate time for preparation and review.

Safety Significance

There is no safety significance associated with the event. During all tests that were performed associated with the installation of the new leak detection equipment the equipment and the downstream logic performed its safety function as designed.

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

Similar Events

A review of previous LERs identified 87-009 as a similar event. It involved an ESF actuation caused by an oversight associated with a procedure revision as a result of a plant modification. Corrective action was very specific to the event.

EIIS Information

Text Reference	EIIS Reference	
	System	Component
Reactor Water Cleanup	CE	---
Reactor Core Isolation Cooling	BN	---
Nuclear Steam Supply Shutoff System	BD	---
RWCU-V-1	CE	V
RWCU-P-1A	CE	P
Leak Detection	IJ	---
RCIC-V-63	BN	V
LD-MON-1B	IJ	MON
LD-MON-2B	IJ	MON
LD-RMS-53C	IJ	HS
LD-RMS-53D	IJ	HS
LD-RMS-54B	IJ	HS
LD-RMS-51B	IJ	HS
LD-RMS-52B	IJ	HS