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SUBJECT: LER 93-025-00:on 930615,Group 1 nuclear steam supply shutoff sys isolation occurred during performance of TS surveillance test on turbine throttle valves.Caused by procedure deficiency.Procedure changed.W/930715 ltr.

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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. 93-025

Transmitted herewith is Licensee Event Report No. 93-025 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. V. Parrish (Mail Drop 1023)
Assistant Managing Director, Operations

JVP/CLF/my
Enclosure

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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 5

TITLE (4)

ENGINEERED SAFETY FEATURE (ESF) ACTUATION CAUSED BY SURVEILLANCE TESTING

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	1 5	9 3	9 3	-- 0 2 5	-- 0 0	0 7	1 5	9 3		0 5 0 0 0
										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)			
4				
POWER LEVEL (10) 0 0 0	20.402(b)	20.405(C)	X 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)	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
C. L. Fies, Licensing Engineer	AREA CODE 5 0 9 3 7 7 - 4 1 4 7

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)

At approximately 1850 hours on June 15, 1993, a Group 1 Nuclear Steam Supply Shutoff System (NS^4) isolation occurred during the performance of a Technical Specification surveillance test associated with the Turbine Throttle Valves. The test involved calibration of position switches on the valves associated with the NS^4 logic. During shutdown conditions there is no main condenser vacuum. The NS^4 logic is configured in a manner where exercising each Turbine Throttle valve to the open position initiates a half Group 1 isolation. During the surveillance test a second Throttle Valve was opened without resetting the (NS^4) logic after testing the first valve. This resulted in a Group 1 isolation which is considered an ESF actuation.

The root cause of this event was a procedural deficiency.

Immediate corrective action was taken to stop work on the surveillance and investigate the cause. Further corrective action was taken to change the surveillance procedure to require a reset of the logic after the switches on each valve are calibrated.

The event posed no threat to the health and safety of either the public or plant personnel.

Plant Conditions

Power Level - 0%
Plant Mode - 4

Event Description

At approximately 1850 hours on June 15, 1993, a Group 1 Nuclear Steam Supply Shutoff System (NS^4) isolation occurred during the performance of a Technical Specification surveillance test associated with the Turbine Throttle Valves. The test was being performed in accordance with plant procedure PPM 7.4.3.1.1.18, Turbine Throttle Valves - System A/B - Channel Calibration. The surveillance provides for the calibration of position switches associated with the closure of the Throttle Valves. During power operation, above 30 percent, these switches initiate a scram when the valves are greater than or equal to five percent closed.

These switches are also used as part of the NS^4 logic. During shutdown conditions there is no main condenser vacuum. The NS^4 logic is configured in a manner where exercising each Turbine Throttle valve to the open position initiates a half Group 1 isolation. During the surveillance test a second Throttle valve was opened without resetting the NS^4 logic after testing the first valve. This resulted in a Group 1 isolation involving a closure signal to the Main Steam Line Isolation Valves and the Main Steam Line Drain Valves. This is an ESF actuation.

Immediate Corrective Action

Immediate corrective action was taken to stop surveillance testing and investigate the cause of the event.

Further Evaluation, Root Cause, and Corrective Action

A. Further Evaluation

1. This event is being reported per the requirements of 10CFR50.73(a)(2)(iv). This event was verbally reported as a non-emergency event under 10CFR50.72(b)(2)(ii) at 2241 hours on June 15, 1993.

2. Further evaluation showed the electricians assigned to perform the throttle valve surveillance had not previously performed the surveillance. In a pre-job briefing, the craft supervisor told them that stroking a throttle valve would cause a half scram. They were also told that the control room must be notified before starting the surveillance and after completing calibration of each throttle valve. They notified the control room prior to starting the surveillance and also after completing each valve. The electricians believed they could cause a half scram and they knew the procedure addressed the MSIVs. However, they did not know the difference between a half

scram and a half isolation and did not realize that they were effecting two separate logic trains when they manipulated the position switches. Actually, the surveillance cannot cause a half scram because RPS relay contacts for the throttle valves are bypassed when the reactor is below 30% power.

3. The precautions and limitations section of the procedure states, "Throttle valve sections may be done in any order however, all steps in each section are to be performed in sequence. Only one instrument channel is to be in a state of test at any time. When a channel is returned to service, verify with the Control Room that all trips, alarms and computer points are cleared before proceeding to the next channel test." In addition, a procedural precaution states in part: "If the RPS-K10 relays are energized with low condenser pressure, MSIVs will get a fast closure signal if more than one throttle valve is open at a time." However, the precaution does not inform the user that a NS^4 half isolation occurs when only one throttle valve is open. It is apparent that the procedural instruction intended to inform the control room of the need to reset appropriate logic. However, the direction was not as specific as it should have been and was not included as a step in the body of the procedure.

4. Operations personnel cannot remember when or if the NS^4 logic was reset during the throttle valve calibration. At the same time they were conducting several other surveillance tests including Turbine Governor Valve (TGV) Fast Closure Response Time Testing and the MSIV Logic System Functional Test. The TGV fast closure surveillance introduces an actual half scram in the RPS logic and both A and B divisions were tested while the throttle valve procedure was in progress. Performance of these surveillances concurrently should not present a problem but in the absence of specific instruction to reset the logic, other surveillances may have diverted the operator's attention from resetting the NS^4 half isolation. Also, an operations shift change occurred near the end of the surveillance.

5. A review of procedures that can initiate a scram or isolation revealed that procedures performed by the Instrument and Controls (I & C) shop are written to be logic safe. The I & C procedures separate the divisions so a full scram or isolation cannot be initiated with a single procedure. There are relatively few procedures of this type performed by the Electrical shop. They have not been subject to this logic safe format. The Maintenance Procedures Department has identified three additional electrical procedures that could possibly cause a full scram or isolation.

6. A review was performed of the development of PPM 7.4.3.1.1.18. Revision 0 of the procedure was written in June 1985. In this revision the test was limited to Throttle Valves 1 and 3. In February 1986 the procedure was revised to include all four throttle valves. The statements in the precautions and limitations sections of these early revisions to the procedures are similar to the current version. A formal validation and verification has not been performed on this procedure. Thus, the procedure has been defective since inception.

B. Root Cause

The root cause of this event was a procedural deficiency. The omission of a required action to reset the NS[4] logic after completing each valve calibration caused the Group 1 isolation. It is recognized that this problem did not occur during previous performances of this surveillance. As discussed above, under further evaluation, there were additional complications that were present when the event occurred.

C. Further Corrective Actions

1. PPM 7.4.3.1.1.18 was changed on June 16, 1993, to include steps in each section of the procedure to reset the NS[4] logic and verify the annunciators have cleared before proceeding to the next valve.

2. Plant Procedures PPM 7.4.3.1.1.18, 7.4.3.1.1.10A, 7.4.3.7.5.44, and 7.4.3.7.5.45 will be revised into logic safe procedures. This will be completed prior to their use during the next refueling outage.

3. An evaluation will be performed to determine the need for additional training for electrical shop personnel involved with Technical Specification Surveillances. This will be completed by October 1, 1993.

Safety Significance

This is no safety significance associated with this event. The plant was in mode 4 and the MSIVs were closed prior to the isolation.

Similar Events

Group 1 isolations have occurred previously at WNP-2. These events are documented in LERs 87-021 and 88-010. However, these isolations were not caused by surveillance testing associated with the Throttle Valves.

EIIS Information

Text Reference	EIIS Reference System	EIIS Reference Component
Nuclear Steam Supply Shutoff System (NS[4])	BD	-
Turbine Throttle Valves	SB	V
Turbine Throttle Valve Position Switches	SB	33
Main Steam Line Isolation Valves	SB	V
Main Steam Line Drain Valves	SB	V