

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 0 3	
TITLE (4) Reactor Scram on Turbine Throttle Valve Closure Indicator															
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 1	8 5	8 5	0 4	7	0 0	7 2	9 8					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)													
1		20.402(b)				20.406(e)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)	
POWER LEVEL (10)		20.406(a)(1)(i)				50.36(e)(1)				50.73(a)(2)(v)				73.71(e)	
0 4 2		20.406(a)(1)(ii)				50.36(e)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 308A)	
		20.306(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)					
		20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)					
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)					
LICENSEE CONTACT FOR THIS LER (12)															
NAME W. S. Davison, Compliance Engineer										TELEPHONE NUMBER 5 0 9 3 7 7 - 1 2 5 0 1 1					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) Ext. 2726															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS					
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR	
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO					

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

During reactor Plant startup on 7/1/85 it was discovered that one of the RPS relays for turbine throttle valve less than or equal to 95% was not energized although all throttle valves were open. In an attempt to reset this relay two different throttle valves were individually stroked. During the closing of the second valve, a full scram was automatically initiated. Throttle valve position limit switches were recalibrated and the Plant was restarted. Procedural precautions to verify relay positions have been implemented. Design changes to alert Control Room Operators to the relay conditions and to improve the actuation of the reset function on the throttle valve position limit switches are being investigated.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Washington Nuclear Plant - Unit 2	0500039785	04	7	1	01	2 OF 01

TEXT (If more space is required, use additional NRC Form 388A's) (17)

Plant Conditions

- a) Power Level - 42%
- b) Reactor Mode - 1

Event

While setting up to shift the reactor recirc pumps to fast speed, it was noted that the pump breakers RPT 3A and 4B trip coil available lights were not illuminated although all required conditions were thought to have been met. Investigation subsequently led to the discovery that the RPS relay, RPS-RLY-K10A, which is deenergized upon closure of turbine throttle valve 1, was not energized. There were no half scrams present at this time.

It was felt that throttle valve #4 might be the problem as it had dual indication and a faulty Linear Variable Differential Transformer (LVDT) position indication. (It was not recognized at that time that K10A was related to Valve 1.) Consequently, Valve #4 was placed in test and stroked fully closed and reopened twice. Relay K10A was checked and again determined to be deenergized. In addition, K10H which is actuated from throttle valve 4, failed to reenergize after valve 4 was reopened. This condition was not observed by Plant personnel because no half scram or other indication of failure was evident.

Throttle valve 3 was then suspected as it also had LVDT problems. When throttle valve 3 passed its trip position, the throttle valve logic was met and K10D and E were deenergized, and a full reactor scram (reactor scram on indicated turbine trip) was initiated.

The RPS logic is designed to allow closure of up to 2 turbine throttle valves at any one time with a 1/2 scram occurring only on certain combinations of closure. For other combinations, a half scram is not experienced. Such was the case for this event and, consequently, the operators had no forewarning of the impending scram.

The cause of this event was due to failures of one limit switch on both valves 1 and 4 to reset. Due to the existing limit switch design application on the valve operators, the tolerance available for switch reset is not always sufficient to account for thermal growth during Plant heatup. Thus, relays RPS-RLY-K10A and G were deenergized. The subsequent closure of throttle valve 3 initiated deenergization of RPS-RLY-K10D and E and resulted in RPS Logic A₁ being satisfied (relays K10A and K10E) and B₂ (relays K-10D and K-10H) and the scram ensued.

Operations personnel reviewed the logic prints while attempting to resolve this event but did not anticipate multiple failures occurring in parallel. This condition, along with the differences in the half scram logic and associated annunciation, led to a condition where a normal evolution resulted in scrambling the Plant.

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Washington Nuclear Plant - Unit 2	0500039785	04	7	00	03	OF	03

TEXT (if more space is required, use additional NRC Form 356A's) (17)

Immediate Corrective Action

- o Throttle valve limit switches were recalibrated.

Further Corrective Action

Several further actions are either ongoing or have been implemented. These include:

- o Procedural caution in the Reactor Plant Cold Startup Procedure to verify position of all eight K10 relays prior to exceeding 25% of rated thermal power.
- o Investigation of the Throttle Valve Limit Switch Calibration Procedure. The procedure supplies only hot limit switch actuator arm lengths to be used during calibration. The procedure had been performed with the Plant in a cold condition. When hot, these settings caused an early limit switch actuation and precluded reset of certain limit switches.
- o Research into a design change which would allow greater travel of the limit switch actuator, making accurate settings of the limit switches easier.
- o Research into a design change which would supply an annunciator warning of a K10 relay being deenergized. Also, investigate the potential for a design change in the RPS logic to provide for a half scram whenever two valves are closed (not open).

Safety Significance

The safety of the Plant personnel and the general public was not jeopardized. No condition existed which could have placed the Plant in an unanalyzed condition. The transient, being similar to a manual scram initiation, was mild and uneventful.

Similar Events

None

EIIS Information

Test Reference	EIIS Reference	
	System	Component
Turbine Throttle Valve	TA	TCV
Control Relay	TA	RLY

Washington Public Power Supply System

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

Docket No. 50-397

July 29, 1985

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 85-047

Dear Sir:

Transmitted herewith is Licensee Event Report No. 85-047 for WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the item of reportability, corrective action taken, and action taken to preclude recurrence.

This is the follow-up report to the verbal notification given at 0150 hours on July 1, 1985.

Very truly yours,



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

CMP:la

Enclosure:

Licensee Event Report No. 85-047

cc: Mr. John B. Martin, NRC - Region V
Mr. A. D. Toth, NRC - Site (901A)
Ms. Dottie Sherman, ANI
INPO Records Center - Atlanta, GA

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