

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8801220161 DOC.DATE: 88/01/15 NOTARIZED: NO DOCKET #
 FACIL:50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
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SUBJECT: LER 87-032-00:on 871216,noncompliance w/Tech Specs due to
 ..RCIC trip sys failure.

W/8 ltr.

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

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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	0500039787	87	032	00	02	OF	04

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Plant Conditions

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

Event Description

An operational condition prohibited by the plant's technical specifications was discovered during an ongoing technical review of instrument calibration setpoints on December 16, 1987. A Plant technical department engineer discovered that the trip setpoint value used in the surveillance procedure for two Reactor Core Isolation Cooling System (RCIC) isolation actuation pressure switches (PS) was incorrect. Both pressure switches RCIC-PS-12A and RCIC-PS-12C are sensing devices (for individual channels associated with one of two trip systems) which cause isolation of the RCIC turbine steam supply line. Each of these trip systems causes closure of a different set of valves to isolate the RCIC turbine steam supply from two turbine exhaust line rupture diaphragms installed in series. The logic for each trip system requires two out of two channels to be above the high turbine exhaust pressure setpoint to cause closure of the associated isolation valves. The original procedure, written prior to plant license issue on December 20, 1983, erroneously contained setpoints which were calculated using a water column head correction factor. Assuming that no water column existed, this resulted in the pressure switch setpoint range being in excess of the maximum allowable trip setpoint value listed in Technical Specification Table 3.3.2-2. Since the setpoints of both of these pressure switches could have been above the trip setpoint and allowable value limits, operability of these devices and the associated trip system channels could not be assured.

The immediate cause of this event was incorrect procedure information in that the instrument setpoints listed in the procedure were incorrect. The root cause of this event was personnel error by a plant startup engineer in that the engineer performing the setpoint calculation failed to recognize actual plant conditions (i.e., that no head correction was required). The actual cause of the error is indeterminate; however, early construction drawings indicated that condensing pots were to be installed on these sensing lines. Had this been the case, a water column head correction would have been appropriate.

Immediate Corrective Action

The Technical Specification Surveillance procedure for channel calibration of the RCIC turbine high exhaust diaphragm pressure switches was corrected in accordance with plant administrative procedures. A confirmatory channel calibration using the corrected procedure was completed at 1630 hours on December 17, 1987.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Further Evaluation and Corrective Action

- o The Technical Specification trip setpoint value for these pressure switches is ≤ 10 psig and the allowable value limit is ≤ 20 psig. The surveillance procedure originally specified 20.4 psig for the RCIC-PS-12C setpoint and 19.5 psig for the RCIC-PS-12A setpoint. Both allowed a tolerance of ± 1 psig. This means that RCIC-PS-12C could have been calibrated by procedure as much as 1.4 psig above the Technical Specification maximum allowable value when no water column existed in the sensing line.
- o During the confirmatory calibration, one of the pressure switches (RCIC-PS-12C) was found to be set in excess of the Technical Specification maximum value by 1.7 psig.
- o An evaluation of trend data (based on worst case approximation) for these two switches, totalling the various individual instances, showed that RCIC-PS-12A could have been above the allowable value limit for a total of 46 months and that RCIC-PS-12C could have been above the allowable value limit for a total of 44 months.
- o All safety related instruments within the primary containment were thoroughly examined previously during a study to determine backfilling requirements during performance of instrument calibration procedures. No abnormalities concerning water column head corrections were discovered. All safety related instruments outside the primary containment which might have water column head correction factors associated with them have been examined. No abnormalities were discovered.
- o This application is unique to the RCIC turbine exhaust system. These pressure switches, unlike other safety related instrument installations, are not directly connected with the system medium they were designed to monitor. Normally, they monitor the pressure of the air contained between two series rupture diaphragms. In the event of rupture of the first diaphragm at 150 psid, steam would be admitted to this space and the pressure switches would be actuated by steam pressure. Isolation of the RCIC turbine steam supply would then commence prior to the rupture of the second diaphragm to minimize admission of steam to the main steam tunnel, an area open to the secondary containment.
- o Due to the unique installation of these devices, this is considered an isolated event. No further corrective action is deemed necessary.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Safety Significance

The erroneous setpoint calculation affected only the two Division I channels of the four channels of instrumentation which provide isolation for the RCIC system on high pressure between the turbine exhaust diaphragms. The procedure for the remaining two channels (comprising the Division II trip system) contained correct setpoints. These two sets of pressure switches monitor the same section of piping and cause isolation of redundant isolation valves. The Division II switches were operational during the entire span of time covered by this event and were able to perform the RCIC steam supply isolation function. Even if the Division II switches had failed during this period, a turbine exhaust overpressure would not have gone undetected. The Division I pressure switches would have detected overpressurization only 1.4 psig (neglecting instrument drift) above the 20 psig allowable limit point even in the most severe case. In the event that this did not allow sufficient margin to secure steam to the RCIC turbine prior to the rupture of the second 150 psid rupture diaphragm, the area into which the line exhausts (the main steam tunnel) contains ambient temperature sensors with associated alarms. This event posed no threat to the safety of Plant personnel or the public.

Similar Events

- None.

EIIS Information

Text Reference

EIIS Reference
System Component

RCIC
RCIC-PS-12A
RCIC-PS-12C
RCIC Turbine
Rupture Diaphragm
Isolation Valves
Condensing Pots

BN ---
BN 63
BN 63
BN TRB
BN RPD
BN SHD
BN CDU



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

January 15, 1988

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 87-032

Dear Sir:

Transmitted herewith is Licensee Event Report No. 87-032 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 (M/D 927M)
WNP-2 Plant Manager

CMP:sm

Enclosure:
Licensee Event Report No. 87-032

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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