REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8709110409 DOC. DATE: 87/09/08 NOTARIZED: NO DOCKET #
FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
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RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-022-00: on 870810, intermediate range Channel N-35 initiated high flux reactor trip. Caused by replacement of channel w/o properly calibr high flux trip setpoint. Procedures revised. W/870908 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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	PD2-1 LA	1	1	PD2-1 PD	1	1
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INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/NAS	1	1
	AEOD/DSP/ROAB	2	2	AEOD/DSP/TPAB	1	1
	DEDRO	1	1	NRR/DEST/ADS	1	0
	NRR/DEST/CEB	1	1	NRR/DEST/ELB	1	1
	NRR/DEST/ICSB	1	1	NRR/DEST/MEB	1	1
	NRR/DEST/MTB	1	1	NRR/DEST/PSB	1	1
	NRR/DEST/RSB	1	1	NRR/DEST/SGB	1	1
	NRR/DLPQ/HFB	1	1	NRR/DLPQ/QAB	1	1
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	NRR/DREP/RPB	2	2	NRR/PMAS/ILRB	1	1
	REG FILE 02	1	1	RES DEPY GI	1	1
	RES TELFORD, J	1	1	RES/DE/EIB	1	1
	RGN2 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	5	5	H ST LOBBY WARD	1	1
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Enclosure to Serial: RNPD/87-4100

NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
H. B. Robinson Steam Electric Plant, Unit No. 2	0 5 0 0 0 2 6 1	1 OF 0 4

TITLE (4)
Reactor Trip Due to Intermediate Range Channel Trip Setpoint Procedural Deficiency

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 8	1 0	8 7	8 7	0 2 2	0 0	0 9	0 8	8 7		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 8	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
David Crook, Specialist - Regulatory Compliance	AREA CODE 8 0 3 3 8 3 - 1 1 7 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 August 10, 1987, at 2334 hours, with Unit No. 2 in startup at about eight percent (%) power, Intermediate Range Channel N-35 initiated a high flux reactor trip. The NRC was notified pursuant to 10CFR50.72(b)(2)(ii).

Prior to the event, the reactor coolant average temperature (TAVG) was decreasing as the unit was synchronized, picking up an initial load of about thirty-five megawatts. A utility licensed operator began withdrawing rods to increase TAVG, and received a Rod Stop signal. Reactor power increased due to TAVG decrease, and a high flux reactor trip resulted.

Intermediate Range Detector N-35 had just been replaced, and the high flux trip setpoint had yet to be determined. The setpoint is based on detector current equivalent to 25% of full reactor power as determined by startup testing. The existing setpoint used was that of the old detector, but the new detectors response was significantly higher. Channel N-35 reached the current equivalent to the old detector setpoint before the automatic trip could be bypassed. This resulted in the reactor trip.

Following the trip, N-35 was calibrated, and the Plant returned to power operation at approximately 0400 hours on August 11, 1987.

Procedures will be revised to ensure that a new Intermediate Range Detector's high flux trip setpoint is bypassed during startup until the proper Intermediate Range setpoint is established.

IE22-0

8709110409 870908
PDR ADOCK 05000261
S PDR

U.S.GPO:1984-0-454-481/18759

NRC Form 366A (9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/85

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H. B. Robinson S.E. Plant, Unit 2	0 5 0 0 0 2 6 1	8 7	— 0 2 2	— 0 0	0 2 OF 0 4

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

I. Description of Event

On August 10, 1987, Unit 2 was in startup and operating at approximately eight percent (%) power. A utility licensed operator opened the Feedwater header section valves in accordance with startup procedures, and power increased approximately 35 megawatts as expected. As the reactor coolant average temperature (TAVG) decreased due to the load increase, the operator began withdrawing control rods to compensate. A Rod Stop signal was received, and a High Level Rod Stop annunciated for Nuclear Instrumentation System Intermediate Range Channel N-35 (EIIS Code IG/DET). The N-35 Detector generated a high flux signal, and an automatic reactor trip resulted at 2334 hours. With Reactor Trip Breakers A and B opening, automatic functions occurred for a Turbine Trip (all turbine valves shut). A P-10 Permissive, indicating two of four power range channels above ten percent of full power had not been received. Operating procedures would not allow the Intermediate Range Detectors to be defeated prior to receiving the P-10 Permissive, which would have prevented the reactor trip. TAVG had decreased to approximately 530 degrees due to Steam Generator Blowdown at 150 gallons per minute per generator. Emergency Operating Procedures were promptly implemented to stabilize and control the Plant following a reactor trip without a safety injection initiation. The operator reduced blowdown to increase TAVG to an acceptable level. The Plant was brought to a safe shutdown condition. The NRC was notified by the shift foreman via the Emergency Notification system pursuant to 10CFR50.72(b)(2)(ii).

II. Cause of Event

The Intermediate Range Detector for Channel N-35 had just been replaced, and its high flux trip setpoint had yet to be calibrated. This setpoint is based on detector current equivalent to 25% of full reactor power. The correct power level setpoint for the new detector was being determined during startup by surveillance testing. The setpoint used, therefore, was the same as for the old detector. Following the reactor trip, the Rod Stop and High Level Trip settings were verified to be accurate for the procedure used.

Although not proceduralized, the practice has been to observe a newly installed detector's response during initial power escalation. If the response appeared high, the trip feature was bypassed to prevent an inadvertent trip. In this case, the detector response was significantly higher than when the unit was synchronized, reading approximately 90% where it had previously indicated 20%, and automatically picked up the initial load of approximately 35 megawatts. The Utility Licensed Senior Reactor Operator noted that between 15 and 20 seconds elapsed from the time the Rod Stop signal was generated and when the reactor trip resulted. Thus, Channel N-35 had reached the current equivalent

to the old detector's setpoint before the trip could be bypassed. Although operators were aware that there were differences in the detector readings, the event happened fast, and N-35 was not bypassed before the trip was received. The reactor trip could have been avoided had procedures initially allowed for a new Intermediate Range detector's high flux trip to be bypassed until the proper setpoint could be established. Action has been initiated to revise procedures to ensure that a new Intermediate Range detector's high flux trip is bypassed until the proper setpoint is established.

III. Analysis of Event

The NRC was immediately notified of this event pursuant to 10CFR50.72(b)(2)(ii) because the consequences resulted in a challenge to the Reactor Protection System. Implications are that, although the setpoint was set in the conservative direction, it could have been non-conservative.

The Intermediate Range instrumentation, as a function of the Nuclear Instrumentation System, is designed to safeguard the reactor by monitoring neutron flux level. Technical Specifications for Reactor Trip instrumentation require that one Nuclear Flux Intermediate Range Channel be operable, or a hot shutdown condition must be maintained. Intermediate Range reactor trips do not appear in the Technical Specifications for safety limits, as these settings are not used in the Transient or Accident Analysis. Because both Intermediate Range Channels N-35 and N-36 were operable at the time of the event, the minimum number of channels required to be operable was met. As shown in the Cause of Event section, all required safety systems performed as required. Therefore, it is concluded that this event had no additional safety consequences or implications.

IV. Corrective Actions

Following the reactor trip, N-35 was taken out-of-service for unit startup. The correct setpoints for the detector were determined, and the Plant returned to power operation at approximately 0400 hours on August 11, 1987.

Action is being taken to revise procedures to ensure that a new Intermediate Range Detector's high flux trip is bypassed until the proper setpoint is established. This action, which will be completed by November 1, 1987, will reduce the likelihood of recurrence of this event.

NRC Form 366A (9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

V. Additional Information

A. Failed Component Identification

This event was caused by a procedural deficiency and is not attributed to equipment failure. The N-35 detector is manufactured by Westinghouse (W120) and is Model Number WL-23707.

B. Previous Similar Events

A related but dissimilar event occurred on June 15, 1987, when Source Range Channel N-31 spiked high due to detector failure which resulted in a reactor trip (LER-87-016).

CP&L

Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT
POST OFFICE BOX 790
HARTSVILLE, SOUTH CAROLINA 29550

SEP 8 1987

Robinson File No: 13510C

Serial: RNPD/87-4100
(10 CFR 50.73)

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT 87-022

Dear Sir:

The enclosed Licensee Event Report (LER) is submitted in accordance with the Licensee Event Report System of 10 CFR 50.73. The format of the LER follows the recommendations of NUREG-1022, September 1983.

Very truly yours,

R. E. Morgan
General Manager
H. B. Robinson S. E. Plant

RDC:jch

Enclosure

cc: J. N. Grace
H. E. P. Krug
INPO

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