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ACCESSION NBR:9109170282 DOC.DATE: 91/09/10 NOTARIZED: NO DOCKET #
 FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH.NAME AUTHOR AFFILIATION
 BAUR,D.H. Carolina Power & Light Co.
 CHAMBERS,R.H. Carolina Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-010-00:on 910816,trip of shutdown bank A rods
 occurred.Caused by valid signal generated from Channel N-31.
 Source & intermediate range detectors moved.W/910910 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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	LO,R		1	1					
INTERNAL:	ACNW		2	2		AEOD/DOA		1	1
	AEOD/DSP/TPAB		1	1		AEOD/ROAB/DSP		2	2
	NRR/DET/ECMB 9H		1	1		NRR/DET/EMEB 7E		1	1
	NRR/DLPQ/LHFB10		1	1		NRR/DLPQ/LPEB10		1	1
	NRR/DOEA/OEAB		1	1		NRR/DREP/PRPB11		2	2
	NRR/DST/SELB 8D		1	1		NRR/DST/SICB8H3		1	1
	NRR/DST/SPLB8D1		1	1		NRR/DST/SRXB 8E		1	1
	REG FILE 02		1	1		RES/DSIR/EIB		1	1
	RGN2 FILE 01		1	1					
EXTERNAL:	EG&G BRYCE,J.H		3	3		L ST LOBBY WARD		1	1
	NRC PDR		1	1		NSIC MURPHY,G.A		1	1
	NSIC POORE,W.		1	1		NUDOCS FULL TXT		1	1

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Carolina Power & Light Company

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SEP 10 1991

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT 91-010

Gentlemen:

The enclosed Licensee Event Report (LER) is submitted in accordance with 10 CFR 50.73 and NUREG-1022 including Supplements No. 1 and 2.

Very truly yours,

R. H. Chambers
Acting Plant General Manager
H. B. Robinson S. E. Plant

DHB:rks

Enclosure

cc: Mr. S. D. Ebner
Mr. L. W. Garner
INPO

9109170282 910910
FDR ADDCK 05000261
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JEZ 1/1

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) H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1	PAGE (3) 1 OF 04
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TITLE (4) SOURCE RANGE REACTOR TRIP WHILE AT HOT SHUTDOWN		
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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	9	1	-	0	1	0		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 0		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 365A)			
		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 David H. Baur - Regulatory Compliance								TELEPHONE NUMBER	
								AREA CODE 8 1 0 3	3 8 3 - 1 2 9 6

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
<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)

At 1958 on August 16, 1991, with the H. B. Robinson Unit No. 2 in hot shutdown, a trip of Shutdown Bank "A" Rods was initiated by Source Range channel N-31. The trip occurred when the Source Range instrumentation was manually energized as part of the process of reactor shutdown under a Limiting Condition of Operation unrelated to this event. The Reactor Trip was caused by a valid signal generated from Channel N-31 greater than the 100,000 Counts Per Second (CPS) Reactor Trip Setpoint.

NRC Form 366A
(9-83)

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 (5)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2	0 5 0 0 0 2 6 1	9 1	0 1 0	0 0	0 2	OF 0 4

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

I. DESCRIPTION OF EVENT

At 1958 on August 16, 1991, with the H. B. Robinson Unit No. 2¹ in hot shutdown, a trip of Shutdown Bank "A" Rods was initiated by Source Range Channel N-31. The trip occurred when the Source Range instrumentation was manually energized as part of the process of reactor shutdown under a Limiting Condition of Operation unrelated to this event. The Reactor Trip was caused by a valid signal generated from channel N-31 greater than the 100,000 Counts Per Second (CPS) Reactor Trip Setpoint.

Prior to energizing the Source Range Detectors, Intermediate Range Channel N-35 had decreased to approximately 4.0×10^{-11} amps with its P-6 Permissive cleared, Channel N-36 had decreased to approximately 1.1×10^{-10} amps with its P-6 Permissive energized (not cleared) but would not decrease any further due to what was initially contributed to be undercompensation. If the second P-6 Permissive had cleared the Source Range channels would have energized automatically. The decision was made to manually energize the Source Range Detectors and, when energized, Channel N-31 indicated 150,000 CPS and Channel N-32 indicated 50,000 CPS. The Reactor Trip that resulted was reported to the NRC via the Emergency Notification System (ENS) at 2143 on August 16, 1991.

Additionally, there were three control rods that did not have Rod Bottom Lights illuminated at the time of the trip. These control rods indicated 9, 14, and 60 inches withdrawn. This condition existed prior to the trip as they are not part of Shutdown Bank "A" Rods. At 2016 on August 16, 1991, the Reactor Coolant System was borated to compensate for the control rods not indicated to be fully inserted. It was subsequently verified that the Rods had fully inserted and an unrelated problem existed with their indications. These control rod indications did not contribute to or result from the trip that is being reported and are only included because they were reported to the NRC via the ENS in conjunction with the trip.

II. CAUSE OF EVENT

The cause of the trip event was a combination of several different factors that were known but not expected to result in any adverse conditions.

The primary factor was the replacement of both Source Range and both Intermediate Range Detectors during Refueling Outage 13 due to water intrusion. These new detectors were calibrated on a reactor core having a very small neutron flux since the plant had been shutdown for a long outage and the recently installed secondary sources had not yet been activated.

¹H. B. Robinson Unit No. 2 is a Pressurized Water Reactor in commercial operation since March, 1971.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMS NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1) H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1 9 1	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		0 1	0 1	0	0 3	OF	0 4

TEXT (If more space is required, use additional NRC Form 364A's) (17)

II. CAUSE OF EVENT (Continued)

These new detectors and the absence of activated secondary sources resulted in the Source Range Discriminator settings being set relatively low to improve neutron count rate. The Intermediate Range Compensating Voltages were set based on historic settings. Intermediate Range Compensating Voltages can only be set accurately immediately following a Reactor shutdown.

Additionally, it was determined prior to Refueling Outage 13 that Robinson Plant needed to purchase two new Source Assemblies, to replace the one Source Assembly installed which did not provide the neutron count rate that was desired. When the Source Assemblies were ordered, it was specified that they would have eight source rodlets each in lieu of the four source rodlets supplied in the existing assembly. This action was determined to be prudent based on the changes in the core loading patterns made necessary by Reactor Vessel Pressurized Thermal Shock considerations. These new and unactivated Source Assemblies were installed in the reactor during Refueling Outage 13. However, later in the outage, the existing (previously activated) Source Assembly was damaged and had to be removed, leaving the plant without an activated Source Assembly.

At 0300 on August 17, 1991, the rod bottom light problem had been investigated and corrected. A defective Signal Conditioning Module was found on one of the rod position indicator channels and the other two only required minor adjustment.

III. ANALYSIS OF EVENT

As stated previously, the Reactor Trip was reported under 10CFR50.72 (b) (2) (ii) as a four hour report and in this LER under 10CFR50.73 (a) (2) (iv) due to the automatic Reactor Trip that occurred on August 16, 1991.

At the time the Reactor Trip occurred, the Reactor had been shutdown for about 1 hour and 13 minutes and the only Control Rods still withdrawn were the Shutdown Bank "A" Rods. The high readings on the Intermediate Range instruments were initially contributed to detector undercompensation. Procedure OP-002, Nuclear Instrumentation System, permits manually energizing the Source Range Instrumentation as long as the Intermediate Range channels are less than 4.0×10^{-10} amps. The process of manually energizing the Source Range Instrumentation and the apparent undercompensation of the Intermediate Range Detectors was discussed by the Operators prior to any action being taken and was determined to be a prudent action in order to provide an accurate indication of the shutdown neutron count rate.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMS NO. 3150-31CA

EXPIRES: 8/31/88

FACILITY NAME (1) H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1 9 1 —	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
			0 1 0 —	0 0	0 4	OF	0 4

TEXT (If more space is required, use additional NRC Form 364A's) (17)

III. ANALYSIS OF EVENT (Continued)

At the time of the event, no one in the plant organization envisioned that the combination of new Source Assemblies (which had now been activated), new Source and Intermediate Range Detectors which were calibrated at the end of Refueling Outage 13 (when the shutdown neutron activity was at a much lower level), and 158 days of continuous operation would result in shutdown neutron flux levels indicating as high as they did. However, the fact that the Source Range channels indicated too high, resulting in an unnecessary trip, is more conservative than if they would have been set to indicate too low, which could have prevented a trip, if a trip had been required.

Based on the information above, it is concluded that this trip did not result from or create an Adverse Nuclear Safety concern.

IV. CORRECTIVE ACTIONS

The corrective actions that were taken included moving the Source and Intermediate Range Detectors further away from the Reactor Vessel to reduce the incident neutrons flux and recalibrating and readjusting the compensating and discriminator voltage settings to provide optimum indications to safely start up and shutdown the plant.

This reactor trip and the events that contributed to it have been entered into Nuclear Network to alert others of the situation that existed at Robinson.

As previously stated, the rod bottom light problems were corrected by replacement of a defective Signal Conditioning Module for one of the rod position indicator channels and adjustment of the module zero for the other two.

V. ADDITIONAL INFORMATION

1. Component failures.
None related to the Reactor Trip.
2. Previous similar events.
None