

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL 50-261

50-261

REC: OREILLY J P
NRC

ORG: BANKS H R
CAROLINA PWR & LIGHT

DOC DATE: 07/18/78
DATE RCVD: 07/25/78

DOCTYPE: LETTER NOTARIZED: NO

COPIES RECEIVED
LTR 1 ENCL 1

SUBJECT:

SUBJECT: FORWARDING LICENSEE EVENT REPT (RO 50-261/78-016) ON 06/13/78 CONCERNING ANALYSIS OF BIT SAMPLE REVEALED BORON CONCENTRATION TANK WAS LESS THAN MINIMUM ALLOWED BY TECH SPEC 3.3.1.1.B, CAUSED BY LEAKAGE PAST INLET VALVES SI-867 A & B... W/ATT.

PLANT NAME: H B ROBINSON -- UNIT 2

REVIEWER INITIAL: XJM
DISTRIBUTOR INITIAL: *W*

***** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS *****

INCIDENT REPORTS
(DISTRIBUTION CODE A002)

FOR ACTION: BR CHIEF ORB#1 BC**W/4 ENCL

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INTERNAL:      REG FILE**W/ENCL
                I & E**W/2 ENCL
                I & C SYSTEMS BR**W/ENCL
                NOVAK/CHECK**W/ENCL
                AD FOR ENG**W/ENCL
                HANAUER**W/ENCL
                AD FOR SYS & PROJ**W/ENCL
                ENGINEERING BR**W/ENCL
                KREGER/J. COLLINS**W/ENCL
                K SEYFRIT/IE**W/ENCL
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NRC PDR**W/ENCL
MIPC**W/3 ENCL
EMERGENCY PLAN BR**W/ENCL
EEB**W/ENCL
PLANT SYSTEMS BR**W/ENCL
AD FOR PLANT SYSTEMS**W/ENCL
REACTOR SAFETY BR**W/ENCL
VOLLMER/BUNCH**W/ENCL
POWER SYS BR**W/ENCL

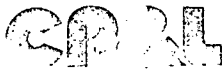
EXTERNAL: LPDR'S
HARTSVILLE, SC**W/ENCL
TIC, LIZ CARTER**W/ENCL
NSIC**W/ENCL
ACRS CAT B**W/16 ENCL

A104

DISTRIBUTION: LTR 45 ENCL 45
SIZE: 1P+1P+2P

CONTROL NBR: 782070040

***** THE END *****



Carolina Power & Light Company

July 18, 1978

FILE: NG-3516 (R)

SERIAL: GD-78-1899

U.S. NRC
REGISTRATION SERVICES
BRANCH

1978 JUL 23 PM 12 03

REGISTRATION
SERVICES UNIT

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II, Suite 1217
230 Peachtree Street, N.W.
Atlanta, Georgia 30303

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT 78-016

Dear Mr. O'Reilly:

In accordance with Section 6.9.2.b of the Technical Specifications for the H. B. Robinson Steam Electric Plant, Unit 2, the attached Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-0161, July, 1977.

Yours very truly,

H. R. Banks
Manager
Nuclear Generation

DCS/lcf

Attachment

cc: Messrs. R. A. Hartfield
E. Volgenau

REGULATORY DOCKET FILE COPY

782070040

A002
5/11

LICENSEE EVENT REPORT

CONTROL BLOCK:

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 (1)

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	S	C	H	B	R	2	2	0	0	-	0	0	0	0	0	-	0	0	3	4	1	1	1	1	4			5	
7	8	LICENSEE CODE						14	15	LICENSE NUMBER										25	26	LICENSE TYPE				30	57	CAT		58

CON'T

7 8 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

REPORT SOURCE L 6 0 5 0 0 0 2 6 1 7 0 6 1 3 7 8 8 0 7 1 8 7 8 9

DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 At 2300 hours, June 13, 1978, analysis of BIT sample revealed boron concentration in

0 3 the tank of 17,268 PPM, less than the minimum allowed by Technical Specification

0 4 3.3.1.1.b of 20,000 PPM. This was found during sampling after completion of the

0 5 monthly SI System Component Test. This constitutes a reportable occurrence under

0 6 Technical Specification 6.9.2.b(2) as operation in degraded condition allowed by

0 7 Technical Specification 3.3.1.2.f. BIT concentration was brought back above minimum

0 8 by recirculation with "A" BAST. Concentration was 21,214 PPM at 0215, June 14, 1978.

7 8 9 No adverse consequences resulted from this occurrence.

09		SYSTEM CODE S F		11	CAUSE CODE E		12	CAUSE SUBCODE E		13	COMPONENT CODE V A L V E X						14	COMP. SUBCODE F		15	VALVE SUBCODE D		16
7	8	9	10		11	12	13	14	15	16	17	18	19	20									
17 LER/RO REPORT NUMBER		EVENT YEAR 7 8		21	22	SEQUENTIAL REPORT NO. 0 1 6		24	25	26	OCCURRENCE CODE 0 3		28	29	REPORT TYPE L		30	REVISION NO. 0		32			
ACTION TAKEN G		18	FUTURE ACTION B		19	EFFECT ON PLANT Z		20	SHUTDOWN METHOD Z		21	HOURS 0 0 0 0		22	ATTACHMENT SUBMITTED Y		23	NPRD-4 FORM SUB. N		24	PRIME COMP. SUPPLIER D		25
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Occurrence was caused by leakage past the inlet valves (SI-867 A&B) on the BIT during
1 1 performance of the SI Periodic Test. BIT was recirculated with the "A" BAST after
1 2 analysis of a sample of BAST revealed proper boron concentration. The BIT was left
1 3 with a concentration of 21,214 PPM at 0215, June 14, 1978.

1 4 7 8 9 80

FACILITY STATUS (28) 1 5 E 1 0 0 (29) OTHER STATUS (30) NA METHOD OF DISCOVERY (31) B DISCOVERY DESCRIPTION (32) Routine Sampling

ACTIVITY CONTENT
RELEASED OF RELEASE AMOUNT OF ACTIVITY (35)
1 6 Z (33) Z (34) NA
7 8 9 10 11 44
LOCATION OF RELEASE (36)
NA
45 80

PERSONNEL EXPOSURES									
NUMBER			TYPE	DESCRIPTION					
1	7	0	0	0	(37) Z	(38) NA	(39)		

PERSONNEL INJURIES		NUMBER		DESCRIPTION	
1	8	0	0	0	NA

		LOSS OF OR DAMAGE TO FACILITY		
TYPE		DESCRIPTION		(43)
1	9	Z	(42)	NA

PUBLICATION										NRC USE ONLY									
ISSUED		DESCRIPTION																	
2	0	N	(44)	NA															
7	8	9	10	68 69 80															

NAME OF PREPARER R. B. Starkey, Jr.

PHONE: (803) 332-1351

SUPPLEMENTAL INFORMATION
FOR
REPORTABLE OCCURRENCE 78-16

1. Report No.: 50-261/78-16
- 2a. Report Date:
- 2b. Occurrence Date: June 13, 1978
3. Facility: H. B. Robinson Unit No. 2, Hartsville, South Carolina 29550
4. Identification of Occurrence: At 2300 hours on June 13, 1978 after completion of the monthly Safety Injection System Component Test, analyses of samples of the Boron Injection Tank revealed a boron concentration of 17,268 PPM. This is below the minimum required concentration of 20,000 PPM as specified in Technical Specification 3.3.1.1.b but is within the limits for continued operation in a degraded condition for 14 hours of greater than 15,000 PPM as defined by Technical Specification 3.3.1.2.f. This constitutes a reportable occurrence in accordance with Technical Specification 6.9.2.b(2).
5. Conditions Prior to Occurrence: The plant was at 100% full power. Quarterly interval Periodic Test 2.7C, Safety Injection System Component Test, had been completed. Boron concentration of the BIT was checked after the completion of the testing of each pump. The concentration after running the first pump (A) was 21,372 PPM and after running the second pump (B) was 20,406 PPM.
6. Description of Occurrence: At 2300 hours on June 13, 1978, after completion of the Safety Injection System Component Test, the sample of the Boron Injection Tank taken after running the third pump revealed boron concentration of 17,268 PPM. This was outside the limits of Technical Specification 3.3.1.1.b. "A" Boric Acid Storage Tank was immediately checked and found to be within acceptable specifications (21,321 PPM). The BIT was recirculated with "A" BAST and concentration was returned to within specifications. The boron concentration of the BIT at 0215 June 14, 1978, was 21,214 PPM. As follow-up to a previous occurrence, Procedure CPL-PT-2.7C had been revised to require sampling from the bottom of the BIT for boron concentration analysis at the end of the testing of each individual pump. A precaution was also added to the procedure to alert the operator to recirculate the BIT with the BAST if the BIT concentration dropped close to the 20,000 PPM limit prior to proceeding with the testing on the next pump. This precaution was not adhered to, resulting in this occurrence.
7. Designation of Apparent Cause of Occurrence: The primary cause of the dilution was apparent leakage past the inlet valves of the BIT (SI-867 A&B) during the running of the Safety Injection Pumps as part of the Safety Injection System Component Test. Investigations have not identified the exact leakage paths. Tests will be performed at the next scheduled outage to verify the leakage path. From investigation to date, the following is believed to be the apparent cause. Testing of the SI pumps pressurizes the line between 867 A&B and the SI pump under test to approximately the discharge pressure of the pump (1480 psi). The pumps are run approximately 15 to 30 minutes. During this time refueling water at 2100 PPM leaks past the seats of 867A and/or 867B. This water, which is at the temperature of

7. Designation of Apparent Cause of Occurrence (Continued):

the BIT, does not circulate very fast and therefore remains at the bottom of the tank. Analysis of samples drawn from the bottom of the tank reveals a diluted concentration which does not adequately represent the concentration in the remainder of the tank. In addition, the sampling and preceding purge of the sample lines provide an outlet from the tank, providing more volume for dilution water through 867A and/or B during the running of the next pump. Coupled with this primary cause was the failure to adequately adhere to the precaution added to the procedure being conducted. This resulted in the BIT concentration falling below the 20,000 PPM limit.

8. Analysis of Occurrence: The Boron Injection Tank is designed to provide a sufficient supply of negative reactivity to mitigate the consequences of a steam break accident. Safety analyses show that the consequences of the steam line break accident are successfully mitigated with a Boron Injection Tank boron concentration of 15,000 PPM. Since the minimum concentration is maintained at 20,000 PPM for additional margin, no adverse impact to the health and safety of the public occurred or would have occurred with the BIT concentration at 17,268 PPM.
9. Corrective Action: The "A" Boric Acid Storage Tank's boron concentration was analyzed and found to be 21,321 PPM. With this information the BIT was recirculated with the "A" BAST. At 0215 hours June 14, 1978, the BIT was sampled and found to be within specification limits. Actual BIT boron concentration at 0215 was 21,214 PPM. In addition to the immediate action to avoid recurrence, the incident has been reviewed with the personnel involved with an admonition and the necessity for adhering to procedures stressed to them. Additional procedural changes will be implemented and reviewed with all personnel to insure that the BIT will be sampled for boron concentration and corrective action will be taken to maintain the boron concentration above specifications after the running of each SI pump during the monthly Periodic Tests.
10. Failure Data: Boron Injection Tank dilutions below the 20,000 PPM Technical Specification limit are listed below:
- | | |
|------------------|--|
| May 9, 1978 | - Resulted from a leaking valve in the SI System. Reported in Reportable Occurrence 78-12. |
| January 3, 1974 | - Resulted from a level change in BAST due to flushing of line between concentrates holding tank and BAST. Reported in H. B. Robinson Unit No. 2 Incident Report No. 74-1. |
| October 16, 1972 | - Resulted from a leaking valve on the Safety Injection System. Reported in H. B. Robinson Unit No. 2 Incident Report No. 48. |
| July 16, 1972 | - Resulted from a valve malfunction. Reported in H. B. Robinson Unit No. 2 Incident Report No. 45. |
| May 4, 1971 | - Resulted from an improper valve lineup. Reported in H. B. Robinson Unit No. 2 Incident Report No. 22. |