

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8807270053 DOC. DATE: 88/07/21 NOTARIZED: NO DOCKET #  
 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261  
 AUTH. NAME AUTHOR AFFILIATION  
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 MORGAN, R.E. Carolina Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-015-00: on 880623, inadequate pump motor & power cable environmental qualification documentation files.

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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	NRR/DEST/ADS 7E	1 0	NRR/DEST/CEB 8H	1 1
	NRR/DEST/ESB 8D	1 1	NRR/DEST/ICSB 7	1 1
	NRR/DEST/MEB 9H	1 1	NRR/DEST/MTB 9H	1 1
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	NRR/DLPQ/QAB 10	1 1	NRR/DOEA/EAB 11	1 1
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	NRR/DRIS/SIB 9A	1 1	NUDOCS-ABSTRACT	1 1
	REG FILE 02	1 1	RES TELFORD, J	1 1
	RES/DSIR DEPY	1 1	RES/DSIR/EIB	1 1
	RCW2 FILE 01	1 1		
EXTERNAL:	EG&G WILLIAMS, S	4 4	FORD BLDG HOY, A	1 1
	H ST LOBBY WARD	1 1	LPDR	1 1
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TOTAL NUMBER OF COPIES REQUIRED: LTTR 45 ENCL 44

## 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 5					
TITLE (4) INADEQUATE PUMP MOTOR AND POWER CABLE ENVIRONMENTAL QUALIFICATION DOCUMENTATION FILES																	

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 6	2 3	8 8	8 8	0 1	5	0 9	0 7	2 1							0 5 0 0 0						
																		0 5 0 0 0			

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)

OPERATING MODE (9)	N	20.402(e)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	1100	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)(vi)	X 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)(vii)(A)	50.49(d)
		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)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME										TELEPHONE NUMBER									
DON SAYRE, SENIOR SPECIALIST - REGULATORY COMPLIANCE										8 0 1 3 3 1 8 3 - 1 1 2 4 1 2									

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)		NO		EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
X						0	1	3 1 8 9

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

On June 23, 1988 the licensee identified documentation deficiencies in the environmental qualification files for the Safety Injection (SI) and Containment Spray (CS) pumps. An issue was qualification of the motor and power cable insulation in a post-accident high radiation environment. There was, however, strong indication the SI pumps were qualifiable and the CS pumps were not required to operate in this environment. The licensee Plant Nuclear Safety Committee (PNSC) determined there was no operability concern since the SI pump motors and power cables were qualifiable and the CS pumps were not required to operate in the post-accident environment. A Justification for Continued Operation (JCO) was prepared. On July 1 the PNSC assessed operability of the SI and Residual Heat Removal (RHR) pump motors in a post-accident elevated temperature environment. The RHR pump motors had been qualified without assuming failure of the area fan coolers and subsequent elevated temperature. A JCO was prepared. Documentation will be developed for the SI, CS, and RHR pumps. This LER is submitted for information on a noncompliance with 10CFR50.49(d).

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NRC Form 365A  
(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) H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	0 1 5	0 0	0 2	OF	0 5

(2) (If more space is required, use additional NRC Form 365A's) (17)

I. DESCRIPTION OF EVENT

On Thursday, June 23, 1988, the licensee identified a potential Environmental Qualification (EQ) deficiency during an assessment of the EQ Program for the Plant.<sup>1</sup> At issue was the environmental qualification of the insulation for the motor windings and power cable of the three Safety Injection (SI) and the two Containment Spray (CS) pumps.<sup>2,3</sup> These components are located in the same room of the Auxiliary Building. A Plant NonCompliance Report was initiated to assure resolution of the pump issue as well as corrective action and action to preclude recurrence.<sup>4</sup>

10 CFR 50.49(d) requires that certain EQ information be on file to demonstrate the qualification of electrical equipment listed as important to safety which may experience a harsh environment. Contrary to the requirement, the five pumps are located in an area of the Plant which may become a harsh environment during post-accident recirculation but no EQ documentation package exists to demonstrate qualification. The lack of sufficient EQ information jeopardizes demonstrating the pumps could withstand the elevated radiation postulated to exist during the post-accident recirculation phase.

After identifying the issue, the licensee convened the Plant Nuclear Safety Committee (PNSC) to assess operability concerns.<sup>5</sup> The PNSC was informed that documentation on file indicated the three SI pump motors were qualifiable for operation in the elevated radiation environment following an accident.<sup>6</sup> The qualification of the CS pump motors, however, was indeterminate since similar documentation was unavailable and the composition of the insulation on the motor windings was unknown.

By procedure, a Justification for Continued Operation (JCO) was required. A JCO was presented to the PNSC the following day.<sup>7,8</sup> The JCO established that the SI pumps would remain operable in the elevated radiation environment postulated to be experienced during post-accident recirculation. The JCO also demonstrated that the CS pumps will have performed their necessary post-accident function prior to recirculation and the elevated radiation environment.

1/H. B. Robinson Steam Electric Plant, Unit No. 2 is a 700 MegaWatt Pressurized Water Reactor power plant, in commercial operation since March 1971.

2/SI Pump Motor: EIS Codes: System - SI; Component - MO; Manufacturer - W120.

3/SI Pump Motor: EIS Codes: System - BE; Component - MO; Manufacturer - W120.

4/NCR-88/090.

5/PNSC Meeting No. 1284.

6/Westinghouse Electric Corporation report No. WCAP-8754.

7/PNSC Meeting No. 1285.

8/JCO No. 88-001.

NRC Form 366A  
(8/83)

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB 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	LER NUMBER (6)			PAGE (3)	
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E2: (If more space is required, use additional NRC Form 366A's) (17)

A schedule has been developed to provide documentation packages for the EQ Central File for the SI pumps. In addition, a similar documentation package for the CS pumps will be developed since it is desired to have these pumps qualified for operation during recirculation.

On July 11, 1988, the PNRC was again convened to assess operability concerns associated with the SI and the two Residual Heat Removal (RHR) pump motors and associated power cable.<sup>9</sup> A JCO was presented to the PNRC which addressed whether it was necessary to environmentally qualify the fan cooler units which serve to cool the SI pump room and the RHR pump pit.<sup>10</sup> Original qualification of the SI and RHR pumps did not assume failure of the area fan coolers and the subsequent elevated temperature. The JCO analysis concluded that the SI pump motors would operate for approximately 77 days and the RHR pump motors for approximately 41 days after the start of recirculation and the failure of the fan cooler units. Furthermore, the power cable was determined to be qualifiable in the post-accident recirculation environment.

The licensee committed to accomplish two actions: 1) to determine the root cause of the EQ Program weaknesses which were indicated by the EQ issues raised over the pumps, and, 2) to include a review of these issues in Plant Operator retraining.

This LER is submitted for information on a noncompliance with 10 CFR 50.49(d).

### III. CAUSE OF EVENT

The root cause of the event has yet to be fully determined. The licensee has devoted a team of technical personnel to a detailed and in-depth assessment of the Plant EQ Program to assure its effectiveness and integrity. The efforts by this team and the continued investigation into root cause are expected to identify the reason for the deficiencies as well as the corrective action and action to preclude recurrence.

### IV. EVALUATION OF EVENT

The SI pumps are located in an area that could be subjected to radiation on the order of  $1.3 \times 10^6$  Rads and to a temperature of 170 degrees Fahrenheit, should the area fan coolers fail. The JCO for the SI pumps concluded that sufficient documentation exists to provide the basis for qualification. Based on the analysis, the SI pumps are considered qualifiable.

The CS pumps will perform their safety function prior to the advent of high radiation levels resulting from recirculation. Any subsequent failure of one or both of the pumps during recirculation would have no adverse effect on the safety of the Plant since two of the four Containment fan coolers are fully capable of providing Containment pressure control during the recirculation phase.

9/PNRC Meeting No. 1286.

DY/JCO No. 88-012.

NRC Form 365a  
(883)

U.S. NUCLEAR REGULATORY COMMISSION

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 8 8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 365a's) (17)

The RHR pumps have been previously qualified for the projected radiation levels in the RHR pump pit. This qualification, however, did not assume failure of the area fan cooler units and subsequent elevated temperature. The RHR pump motors are constructed using the same insulation system as the SI pump motors. Calculations conclude that the expected temperature during recirculation would reach 177 degrees Fahrenheit. Analysis of the effect of the temperature on the RHR pump motors concludes that the motors would operate for approximately 41 days after the start of recirculation and the subsequent failure of the fan cooler units. This analysis conservatively assumes an ambient temperature of 190 degrees Fahrenheit and assumes motor operation up to the time of the accident at the design ambient temperature of 194 degrees Fahrenheit.

The EQ issues concerning the seven pump motors and associated power cables were discovered and identified while the Plant was operating at 100 percent reactor power. At no time was there a threat to the safety of the Plant or to the public. Each qualification concern has been satisfactorily addressed by JCO and engineering evaluation.

IV. CORRECTIVE ACTION

A Plant NonConformance Report has been initiated to assure resolution of the concerns regarding the SI and CS pumps. Corrective action and action to preclude recurrence will be provided.

Continued operation of the Plant in light of the EQ deficiencies concerning the SI, CS, and RHR pumps has been justified and concurred with by the PNSC.

The licensee will assemble EQ documentation packages for the SI pump motors and will amend the documentation package for the RHR pump motors. Documentation packages will be prepared for the cables feeding the motors.

The licensee will also assemble an EQ documentation package for the CS pumps since operation of these pumps during recirculation is desirable.

The licensee will continue to investigate the root cause for the EQ deficiencies and will provide information in a supplement to this LER.

The licensee will include a brief review of the EQ issues of this LER in Plant operator retraining.

V. ADDITIONAL INFORMATION

## A. Failed Component Identification

None.

NRC Form 365A  
(982)

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT: (If more space is required, use additional NRC Form 365A-1 (17))

## B. Previous Similar Events

LER-87-003-01 reported an EQ deficiency with regard to heat shrinkable tubing splices.<sup>11</sup>

LER-87-007-00 reported on five apparent EQ Program deficiencies.<sup>12</sup>

## C. Other Information

The NRC has issued Inspection Report No. 50-261/87-10 concerning an inspection of the Plant EQ Program.<sup>13</sup>

11/Letter, R. E. Morgan, CP&L, to NRC, Serial: RNPB/87-2732, dated June 12, 1987.

12/Letter, R. E. Morgan, CP&L, to NRC, Serial: RNPB/87-2713, dated June 12, 1987.

13/Letter, S. A. Varga, NRC, to E. E. Utley, CP&L, NRC INSPECTION REPORT NO. 50-261/87-10, dated July 23, 1987.

~~CONFIDENTIAL~~

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

JUL 21 1988

Robinson File No: 13510C

Serial: RNP/88-3255  
(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 88-015-00

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

DAS:jch

Enclosure

cc: Dr. J. N. Grace  
Mr. L. W. Garner  
LNPO

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