ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8902080501 DOC.DATE: 89/02/01 NOTARIZED: NO DOCKET #
FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
AUTH.NAME AUTHOR AFFILIATION
SAYRE,D. Carolina Power & Light Co.
MORGAN,R.E. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-015-01:on 880623,inadequate pump motor & power cable environ qualification documentation files.W/890201 ltr.
W/8 ltr.

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

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD2-1 LA	1	1	PD2-1 PD	1	1
	LO,R	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	ACRS WYLIE	1	1	AEOD/DOA	1	1
	AEOD/DSP/TPAB	1	1	AEOD/ROAB/DSP	2	2
	ARM/DCTS/DAB	1	1	DEDRO	1	1
	NRR/DEST/ADE 8H	1	1	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	NRR/DEST/PSB 8D	1	1
	NRR/DEST/RSB 8E	1	1	NRR/DEST/SGB 8D	1	1
	NRR/DLPQ/HFB 10	1	1	NRR/DLPQ/QAB 10	1	1
	NRR/DOEA/EAB 11	1	1	NRR/DREP/RAB 10	1	1
	NRR/DREP/RPB 10	2	2	NRR/DRIS/SIB 9A	1	1
	NUDOCS-ABSTRACT	1	1	REG FILE 02	1	1
	RES/DSIR/EIB	1	1	RES/DSR/PRAB	1	1
	RGN2 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
	NRC PDR	1	1	NSIC HARRIS,J	1	1
	NSIC MAYS,G	1	1			

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE **HELP** US TO **REDUCE WASTE**! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) **TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!**

A10-4

TOTAL NUMBER OF COPIES REQUIRED: LTTR 45 ENCL 44

RIDS/ADDS

RIDS/ADDS

Enclosure to Serial: 89-[redacted]11

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)	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 5 0 0 0
0 6	2 3	8 8	8 8	— 0 1 5	— 0 1	0 2	0 1	8 9		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)	1 0 0	20.402(b)	20.405(c)	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)	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)(viii)(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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

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

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 June 23, 1988 the licensee identified documentation deficiencies in the environmental qualification files for the Safety Injection (SI) and Containment Spray (CS) pumps. At 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 has been developed for the SI, CS, and RHR pumps. This LER is submitted for information on a noncompliance with 10CFR50.49(d).

1622

NRC Form 366A
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

TEXT *(If more space is required, use additional NRC Form 366A'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.[1] 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.[2,3] These components are located in the same room of the Auxiliary Building. A Plant NonConformance Report was initiated to assure resolution of the pump issue as well as corrective action and action to preclude recurrence.[4]

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.[5] 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.[6] 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.[7,8] 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 EIIS Codes: System - BQ; Component - MO; Manufacturer - W120.
3/SI Pump Motor EIIS 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.

*U.S. GPO: 1988-520-589:00070

NRC Form 366A (9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

TEXT *(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 1, 1988, the PNSC was again convened to assess operability concerns associated with the SI and the two Residual Heat Removal (RHR) pump motors and associated power cable.[9] A JCO was presented to the PNSC 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.[10] 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).

II. CAUSE OF EVENT

The root cause of the event has been attributed to inadequacies in the process for responding to regulatory EQ issues in the early 1980's. 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 have identified the reason for the deficiencies as well as the corrective action and action to preclude recurrence.

III. EVALUATION OF EVENT

The SI pumps are located in an area that could be subjected to radiation on the order of 1.3×10^6 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/PNSC Meeting No. 1286.
10/JCO No. 88-002.

NRC Form 366A (9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

TEXT *(If more space is required, use additional NRC Form 366A'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 104 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, with corrective action and action to preclude recurrence provided as discussed in Section V.C.

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 has assembled EQ documentation packages for the SI pump motors and amended the documentation package for the RHR pump motors. Documentation packages have been prepared for the cables feeding the motors.

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

The licensee has investigated the root cause for the EQ deficiencies (see V.C.).

The licensee has included a brief review of the EQ issues of this LER in Plant licensed operator retraining scheduled for completion by May 26, 1989.

V. ADDITIONAL INFORMATION

A. Failed Component Identification

None.

*U.S. GPO: 1988-520-589-00070

NRC Form 366A
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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	
H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2	0 5 0 0 0 2 6 1	8 8	— 0 1 5	— 0 1	0 5 OF 0 5

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

B. Previous Similar Events

LER-87-003-01 reported an EQ deficiency with regard to heat shrinkable tubing splices.[11]

LER-87-007-00 reported on five apparent EQ Program deficiencies.[12]

C. Other Information

The NRC has issued Inspection Report No. 50-261/87-10 concerning an inspection of the Plant EQ Program.[13] The licensee has provided response to the findings of the Inspection Report.[14]

Since the original submission of the LER for this event, environmental qualification packages have been filed in the EQ Central Files for the SI, CS, and RHR pump motors and associated cables. The cause of the weaknesses in the EQ Program discussed in this LER has been determined as an inadequate review of environmental requirements when responding to NRC IE Bulletin No. 79-01B.

The 45-day response to the Bulletin considered the SI, CS, and RHR pump motors and cables to be located in a non-harsh environment. Subsequent submittals for the Bulletin and later for 10CFR50.49 were built on the 45-day response, resulting in these components being carried forward as being in a non-harsh environment. The short time frame allowed for initial response to the Bulletin was an additional contributing factor. Also, the process then in place for responding to regulatory EQ issues was less established, with the principal responsibilities assigned to the corporate office rather than the Plant. Since then, the process responsiblities have been shifted to the Plant.

11/Letter, R. E. Morgan, CP&L, to NRC, Serial: RNPD/87-2732, dated June 12, 1987.
12/Letter, R. E. Morgan, CP&L, to NRC, Serial: RNPD/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.
14/Letter, E. E. Utley; CP&L, to J. Lieberman, Serial: NLS-88-188, dated September 1, 1988.

CP&L
Carolina Power & Light Company

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

FEB 0 1 1989

Robinson File No: 13510C

Serial: RNPD/89-0411
(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 88-015-01

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. This LER should replace existing copies of the original report of July 21, 1988.

Very truly yours,

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

DAS:lko

Enclosure

cc: Mr. M. L. Ernst
Mr. L. W. Garner
INPO

IE22
1/1