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ACCESSION NBR: 8912110192 DOC. DATE: 89/12/01 NOTARIZED: NO DOCKET #
 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH. NAME AUTHOR AFFILIATION
 CROOK, R.D. Carolina Power & Light Co.
 MORGAN, R.E. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-015-00: on 891103, EQ conduit seal deficiency due to inadequate wire use range installation instructions. W/8 1tr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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	AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
	DEDRO	1 1	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB9H3	1 1	NRR/DET/ESGB 8D	1 1
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	NRR/DST/SELB 8D	1 1	NRR/DST/SICB 7E	1 1
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	NUDOCS-ABSTRACT	1 1	REG FILE 02	1 1
	RES/DSIR/EIB	1 1	RGN2 FILE 01	1 1
EXTERNAL:	EG&G WILLIAMS, S	4 4	L ST LOBBY WARD	1 1
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Carolina Power & Light Company

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

Company Correspondence

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT 89-015-00

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

RDC:lht

Enclosure

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

8912110192 891201
FDR ADDCK 05000261
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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 1					PAGE (3) 1 OF 5	
TITLE (4) EQ Conduit Seal Deficiency Due to Inadequate Wire Use Range Installation Instructions																
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)			
11	03	89	89	013	001	12	01	89					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 10 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)				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 R. D. Crook, Sr. Specialist, Regulatory Compliance										TELEPHONE NUMBER 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
<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)

On November 3, 1989, Unit No. 2 was in Cold Shutdown. As a result of research to respond to an NRC question, it was identified that a potential moisture intrusion path existed in cable entrance conduit seal applications on safety related instrumentation inside Containment. Specifically, it was identified that in some applications, the conduit seal grommet had an inappropriate wire use range for the installation, and therefore could allow moisture to enter through the seal and into safety related electrical components. The cause of this condition is attributed to inadequate installation instructions provided by the seal manufacturer. The affected seals have been repaired to conform to the proper wire use range. This LER is submitted pursuant to 10CFR50.73(a)(2)(v).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/86

FACILITY NAME (1) H. B. Robinson Steam Electric Plant, Unit No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1 8 9										LER NUMBER (8)			PAGE (3)			
											YEAR	SEQUENTIAL NUMBER	REVISION NUMBER				

TEXT (If more space is required, use additional NRC Form 368A's) (17)

I. DESCRIPTION OF EVENT

On November 3, 1989, Unit No. 2 was in cold shutdown for work on the Auxiliary Feedwater System.¹ Concurrent with this work, research was being performed in response to an NRC Inspectors' questions regarding the qualification of cable entrance seals in Environmental Qualification (EQ) applications. At approximately 1300 hours, it was identified that a potential deficiency existed with the wire use range associated with cable entrance conduit seal applications. Specifically, it was found that the conductors passing through some of the grommets were undersized for the application. Therefore, a moisture intrusion path was created between the conduit seal grommet and the wire and into the affected component. The affected equipment included both trains of instrumentation required to mitigate the consequences of an accident which would have caused the condition to exist.

On November 7, 1989, it was identified that as a result of conduit seal torquing performed on November 3, the potential for an additional leakage path had been created. This path was at the seal connection to the instrument housing. No specific motion of the pipe nipple was documented, but it was suspected. The conduit seal to instrument housing seal integrity was, therefore, considered to be indeterminate.

While verifying the torque on the conduit seal union nut, in approximately one half of the seals, the union nut moved about one quarter inch when 50 ft. lb. torque was applied. One of the ninety seals inspected was found to have a significantly loose union nut.

The NRC was notified via the ENS of the grommet wire use range condition on November 6, 1989, at 0943 hours, pursuant to 10CFR50.72(b)(2)(iii). A followup notification was made on November 7, at 1854 hours, to report the discovery of the additional potential leak path.

This LER is submitted pursuant to 10CFR50.73(b)(2)(v)(D).

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

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 8 9 — 0 1 3 — 0 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

II. CAUSE OF EVENT

Three modifications installed the conduit seals during 1986 and 1987. A review of these modifications was performed to determine the root cause of this condition. This review demonstrated that the installation instructions provided in each modification were consistent with the manufacturer's instructions available at the time. These instructions specified the following as a maximum wire diameter use range for the conduit seal grommet:

GROMMETMAXIMUM INSULATION DIAMETER

GR-12	.170
GR-14	.150
GR-16	.135
GR-18	.120

A minimum insulation diameter size was not specified. However, later revisions of the installation instructions do specify a minimum allowable insulation diameter.

The use of wire range sizes (GR-12, GR-14, GR-16, GR-18) to designate the grommets appeared to be a mechanism used to assist in choosing the proper grommet for the application. Therefore, it was reasonable based on the information supplied by the manufacturer, for the developers of the modifications to choose the GR-16 grommet for 16 AWG wire applications. However, recent information obtained from the manufacturer as a result of this condition clarifies the installation instructions, and provides insulation diameter ranges associated with each part number.

Regarding the loosening of the union nuts, the manufacturer has stated that the one-quarter inch movement upon application of 50 ft. lb. torque does not indicate a degraded seal. The one incident of a significantly loose union nut is an isolated condition.

Therefore, the cause of the wire use deficiency in conduit seals is attributed to the failure of the manufacturer to supply adequate installation instructions for the conduit seal.

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 8 9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 368A's) (17)

III. ANALYSIS OF EVENT

The conduit seals are of Patel manufacture. The seals are multi-cable mechanical interfaces that are used to seal existing conduit and field lead cables with a grommet. The equipment affected by the deficiency described in this report includes both trains of instrumentation required to mitigate the consequences of an accident which would have caused the condition to exist. The systems affected are as follows:

- Chemical and Volume Control
- Main Steam
- HVAC - Containment
- Pressurizer
- Steam Generator
- Safety Injection - Accumulators
- Post Accident Sampling
- Reactor Coolant System
- Containment Pressure

IV. CORRECTIVE ACTION

Conduit seals in EQ applications were inspected for proper wire use range. Where proper use range did not exist, the grommet was replaced except for certain applications associated with ASCO solenoid valves. In these applications, drain holes were drilled at an elevation lower than the solenoid to conform to the ASCO tested configuration in lieu of replacing the conduit seal.

Plant procedures have been revised to specify the appropriate wire use range for conduit seal grommets. In addition, procedures now require a formal evaluation of EQ documentation prior to implementation of a modification. This evaluation will serve to preclude repetition of the condition described in the report. No further corrective action is necessary.

V. ADDITIONAL INFORMATION

- A. Failed Component Identification
None
- B. Previous Similar Events
Licensee Event Report 88-022
Licensee Event Report 87-033

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

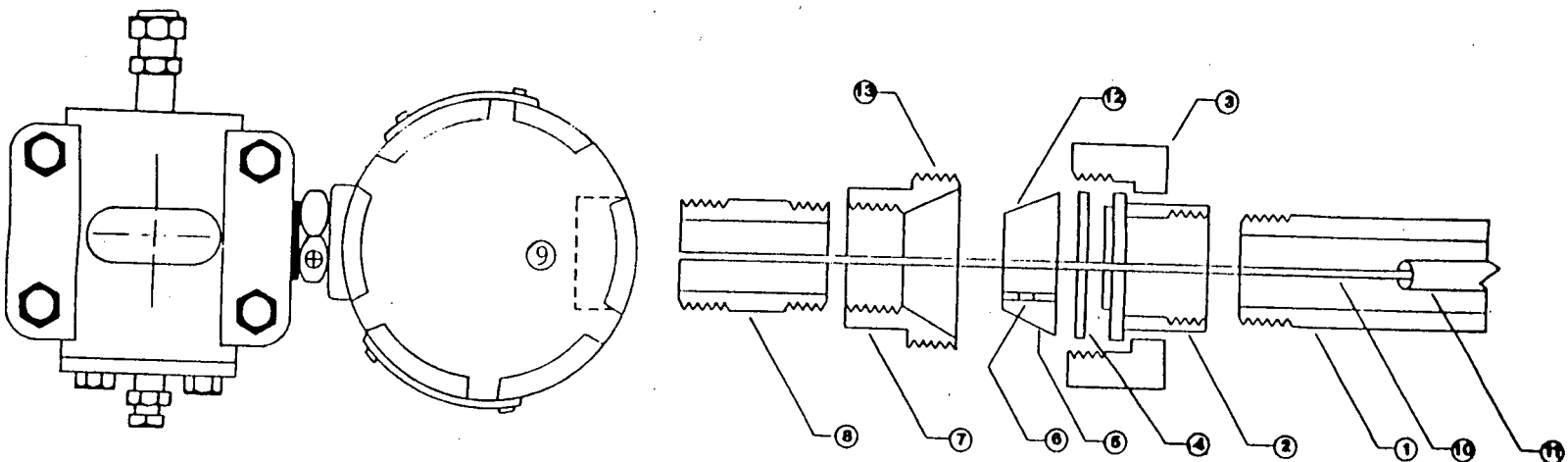
U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/00

FACILITY NAME (1)
H. B. Robinson Steam Electric Plant,
Unit No. 2

DOCKET NUMBER (2)
05090926189-0143-0105015

DOCKET NUMBER (2)		LER NUMBER (6)		PAGE (3)	
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5	0	9	0	1	4
0	9	0	1	4	3
2	6	1	8	9	0
1	8	9	0	1	4
8	9	0	1	4	3
0	1	4	3	0	1
0	5	0	1	4	3
0	1	5	0	1	4
5	0	1	4	3	0
1	5	0	1	4	3

TEXT (If more space is required, use additional NRC Form 364A (1/17))



PARTS LIST

- | | |
|--------------------------|---------------------------|
| 1 FIELD CONDUIT | 8 PIPE NIPPLE |
| 2 HOUSING, HIGH PRESSURE | 9 INSTRUMENT HOUSING |
| 3 UNION NUT | 10 SINGLE INSULATED CABLE |
| 4 FLAT WASHER | 11 CABLE JACKET |
| 5 RUBBER GROMMET | 12 ANTI-SEIZE |
| 6 STEEL BALL | 13 DAG 156 LUBRICANT |
| 7 HOUSING, LOW PRESSURE | |