

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Light 05000261
 AUTH. NAME: AUTHOR AFFILIATION
 ZIMMERMAN, S. R. Carolina Power & Light Co.
 RECIP. NAME: RECIPIENT AFFILIATION
 VARGA, S. A. Operating Reactors Branch 1

SUBJECT: Forwards results of uncertainty determinations re
 NUREG-0737, Items II.F.1.4, 5 & 6 concerning containment
 pressure, water level & hydrogen monitors, per 830214 request.

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	NRR PAWLSON, W.	1	1	NRR/DHFS/DEPY29	1	1
	NRR/DL DIR 14	1	1	NRR/DL/ADL 16	1	1
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	REV FILE 04	1	1	RGN2	1	1
EXTERNAL:	ACRS 34	10	10	INPO, J. STARNES	1	1
	LPDR 03	1	1	NRC PDR 02	1	1
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Carolina Power & Light Company
AUG 04 1983

SERIAL: LAP-83-285

Director of Nuclear Reactor Regulation
Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
NUREG-0737 ITEMS II.F.1.4, II.F.1.5, AND II.F.1.6
CONTAINMENT PRESSURE, WATER LEVEL, AND HYDROGEN MONITORS

Dear Mr. Varga:

By letter dated April 7, 1983, Carolina Power & Light Company (CP&L) responded to your February 14, 1983 request for information concerning the containment pressure, water level, and hydrogen monitors for the H. B. Robinson Steam Electric Plant Unit No. 2 (HBR2). At that time, CP&L was unable to provide a complete response. Specifically, some of the uncertainty determinations were not available, and CP&L committed to provide the remaining information by August 1, 1983. As a result of this latest review, some of the previously supplied values for the containment pressure monitoring system (Rosemount Pressure Transmitter) have been superseded. These uncertainty determinations have now been completed and the results are attached. This completes CP&L's response to your February 14, 1983 request for information.

If you have any further questions regarding these items, please contact a member of the Nuclear Licensing Staff.

Yours very truly,

S. R. Zimmerman
Manager
Licensing & Permits

ONH/lcv (7239ONH)

Attachment

8308090717 830804
PDR ADOCK 05000261
P PDR

cc: Mr. J. P. O'Reilly (NRC-RII)
Mr. G. Requa (NRC)
Mr. Steve Weise (NRC-HBR)

AO46
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II.F.1.4 - PRESSURE MONITORING SYSTEM (PMS)

Module Uncertainty

1. Rosemount Pressure Transmitter - Model 1153HA7

Accuracy: $\pm 0.25\%$ of span (includes combined effects of linearity, hysteresis, and repeatability)
S = $\pm 0.084\%$ of span

Dead Band: None

Temperature Effect: $\pm 3.79\%/100^\circ\text{F}$ (includes span and zero effects)
S = $\pm 1.264\%$ of span

Static Pressure Effect: Zero Error: $\pm 0.134\%$ of span
S = $\pm 0.045\%$ of span
Span Error: $\pm 0.375\%$ of span
S = $\pm 0.125\%$ of span

Power Supply Effect: $\pm 0.0001\%$ of span (assuming maximum output variation of ± 0.02 VDC.)
S = $\pm 0.00004\%$ of span (negligible)

$S_{\text{XMTR}} = \pm 1.52\%$ of span

2. Westinghouse Model 121 Power Supply (45VDC)

Output Regulation (Line): ± 0.00549 VDC for input variations from 105-132 or 132-105 volts

Output Regulation (Load): ± 0.00549 VDC for input variations from no load to full load or full load to no load

Temperature Coefficient: ± 0.00705 VDC (from 4.4°C to 50°C)

Ripple and Noise: ± 0.00099 VDC (0.0022% of 45 VDC)

Maximum output variation with maximum line, load, ripple, and noise at a relatively stable temperature is assumed to be ± 0.02 VDC.

3. Tigraph Recorder - Model 100

Accuracy: $\pm 0.5\%$ of span
 $S_{\text{RCDR}} = \pm 0.17\%$ of span

4. Westinghouse Type 252 Edge Meter

Accuracy: $\pm 1.0\%$ of span
 $S_{\text{MTR}} = \pm 0.34\%$ of span

Overall System Uncertainty

Indicator Output: $S_s = \pm 3.30\%$ of span
Recorder Output: $S_s = \pm 2.71\%$ of span

Module Time Response

1. Tigraph Recorder - Model 100

0.05 seconds (full scale response time)

2. Westinghouse Type 252 Edge Meter

0.0035 seconds (time constant)

II.F.1.5 - WATER LEVEL MONITORING SYSTEM (WLMS)

Module Uncertainty

1. Gems Level Transmitters - Models XM-52495 and XM-36495
Accuracy: $\pm 0.24\%$ of span
 $S_{XMTR} = \pm 0.08\%$ of span
2. Gems Receiver Monitor - Model RE-36562
Accuracy: $\pm 2\%$ of span
 $S_{MON} = \pm 0.67\%$ of span
3. Tigraph Recorder - Model 100
Accuracy: $\pm 0.5\%$ of span
 $S_{REC} = \pm 0.17\%$ of span

Overall System Uncertainty

Indicator Output: $S_s = \pm 1.22\%$ of span
Recorder Output: $S_s = \pm 0.49\%$ of span

II.F.1.6 - HYDROGEN MONITOR SYSTEM (HMS)

Module Uncertainty

1. General Electric Hydrogen Sensor Assembly 47E24610G2

Accuracy (70-340°F): $\pm 5\%$ span
 $S = \pm 1.67\%$ of span

Repeatability: $\pm 2\%$ span
 $S = \pm 0.67\%$ of span

Zero & Span Drift: $\pm 2\%$ span
 $S = \pm 0.67\%$ of span

$S_{\text{SENSOR}} = \pm 3.01\%$ of span

2. CEC Pressure Transducer 1000-0208, Rev. A

Accuracy: $\pm 0.1\%$ of span
 $S = \pm 0.034\%$ of span

Thermal Error: $\pm 0.5\%$ of span
 $S = \pm 0.17\%$ of span

Non-Linearity,
Hysteresis and
Non-Repeatability
Error: $\pm 0.25\%$ of span
 $S = \pm 0.084\%$ of span

$S_{\text{XDUCER}} = \pm 0.288\%$ of span

3. General Electric Hydrogen Analyzer Electronics Panel Assy.

Accuracy: $\pm 4.0\%$ of span
 $S_{\text{EHA}} = \pm 1.334\%$ of span

4. Tigraph Recorder - Model 100

Accuracy: $\pm 0.5\%$ of span
 $S_{\text{RCDR}} = \pm 0.17\%$ of span

Overall System Uncertainty

Indicator Output: $S_s = \pm 11.75\%$ of span
Recorder Output: $S_s = \pm 14.74\%$ of span