



Carolina Power & Light Company

September 14, 1979

Central Filer

FILE: NG-3513(R)

SERIAL: GD-79-2311

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USNRC REGION
ATLANTA, GEORGIA

Mr. James P. O'Reilly, Director
U.S. Nuclear Regulatory Commission
Region II, Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
RESPONSE TO IE BULLETIN NO. 79-21

Dear Mr. O'Reilly:

In response to the items of IE Bulletin No. 79-21, the following information is provided as it relates to H. B. Robinson Unit No. 2:

1. Following is a list of the liquid level measuring systems within containment:

<u>System</u>	<u>Description</u>	<u>Type of Reference Leg</u>
S.G. Level	3 Narrow Range per S.G.	Open Column
S.G. Level	1 Wide Range per S.G.	Open Column
Pressurizer Level	3 Narrow Range	Open Column
Pressurizer Level	1 Wide Range	Open Column
S.I. Accumulator	2 Narrow Range	None (Displacement Type)
Prez. Relief Tank	1 Wide Range	None (Displacement Type)
R.C. Drain Tank	1 Wide Range	None (Displacement Type)

2. An evaluation of the effects of post accident ambient temperature was conducted on steam generator level and pressurizer level as these would be the only systems subject to these effects. Tables 1 and 2 show the effect of Reference Leg Heatup, and Tables 3 and 4 describe the effects of Coolant Density Changes on the above affected instrument systems.

Recent containment analyses performed by the Robinson Plant NSSS supplier for a typical dry containment plant indicates that Reference Leg Boiling would not occur. Although there is no reason to assume that these results would not apply to Robinson No. 2, further evaluation of this phenomena as it relates to Robinson will be conducted.

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3. The only instrument systems used for initiating action required by the Safety Analysis are the steam generator levels. The three narrow-range instruments on each steam generator feed a two-out-of-three matrix to initiate the low-low level actuation at 15% of span. The Technical Specification limit for this setpoint was found nonconservative when the condition of reference leg heating was considered. Because large steam generator pressure changes are not expected before a reactor trip, only the reference leg heatup effects need be considered, and not the effects of system pressure changes. This nonconservatism was reported on LER 79-19. It should be noted that the setpoint used at H. B. Robinson was administratively controlled by the Plant Operating Manual at 15% and did have adequate conservatism to assure the initiation required by the safety analysis.

A Technical Specification change request is being initiated to increase this low-low level limit to 14% of span with the Plant Operating Manual limit remaining at 15%.

4. Procedures and operating curves are being reviewed and will be revised as required so that necessary instructions regarding these effects will be readily available to the operator. These procedures will incorporate instructions to address the effects of system pressure changes as well as reference leg heating. These revisions, including the necessary training, should be completed by December 1, 1979.

Except for the additional evaluation needed to provide assurance that Reference Leg Boiling does not affect Robinson No. 2, the actions above are believed adequate to respond to the concerns related in the subject bulletin. If this evaluation yields information different from that already reported, this information will be provided to you.

Yours very truly,



B. J. Furr
Manager
Generation Department

RSM:CSB:jmb*

cc: NRC Office of Inspection and Enforcement
Division of Reactor Operations Inspection

TABLE 1

Correction to Indicated Steam Generator Water Level
For Reference Leg Heatup Effects Due to a Post-Accident
Containment Temperature Increase

<u>Maximum Containment Temperature Reached, °F</u>	<u>Correction To S/G Level, % of Span</u>
70°	-0.47%
90°	0%
120°	1.01%
160°	2.65%
200°	4.77%
230°	6.57%
265°	8.91%

Basis:

Level Calibration Pressure: 1020 psia
Reference Leg Calibration Temperature: 90°F
Height of Reference Leg: 1.03 X Level Span
Assumes no Reference Leg, Flashing Occurs

TABLE 2

Correction to Indicated Pressurizer
Water Level For Reference Leg Heatup
Effects Due to a Post-Accident Containment Temperature Increase

<u>Maximum Containment Temperature Reached, °F</u>	<u>Correction to PZR Level, % of Span</u>
70°	- .66%
90°	0%
120°	1.43%
160°	3.74%
200°	6.73%
230°	9.16%
265°	12.35%

Basis:

Level Calibration Pressure: 2250 psia
Reference Leg Calibration Temperature: 90°F
Height of Reference Leg: 1.03 X Level Span
Assumes no Reference Leg, Flashing Occurs

TABLE 3

Bias Due to Steam Generator Pressure Change
Calibration at 90°F, 1020 PSIA

Steam Generator Pressure	True Level	Level Error	Indicated Level
PSIA	(% of Span)	(% of Span)	(% of Span)
50	0	-4.7	-4.7
	25	+4.0	29.0
	50	11.9	61.9
	75	20.7	95.7
	100	28.5	128.5
200	0	-4.0	-4.0
	25	2.5	27.5
	50	8.0	58.0
	75	14.0	89.0
	100	20.1	120.1
600	0	-2.3	-2.3
	25	.5	25.5
	50	3.1	53.1
	75	6.0	81.0
	100	8.5	108.5
1000	0	-.12	-.12
	25	0	25.0
	50	.12	50.12
	75	.24	75.24
	100	.36	100.36
1200	0	1.1	1.1
	25	0	25.0
	50	-1.1	48.9
	75	-2.0	73.0
	100	-3.3	96.7

TABLE 4

Bias Due to Pressurizer Pressure Change
Calibration at 90°F, 2250 PSIA

Pressurizer Pressure	True Level	Level Error	Indicated Level
(PSIA)	(% of Span)	(% of Span)	(% of Span)
100	0	-19.2	-19.2
	25	+11.6	36.6
	50	23.2	73.2
	75	44.4	119.4
	100	65.8	165.8
1000	0	-13.0	-13.0
	25	-1.5	23.5
	50	9.3	59.3
	75	20.9	95.9
	100	31.7	131.7
1600	0	-7.8	-7.8
	25	-1.3	23.7
	50	4.3	54.3
	75	10.5	85.5
	100	16.5	116.5
2200	0	-.73	-.73
	25	-.2	24.8
	50	.3	50.3
	75	1.0	76.0
	100	1.3	101.3
2600	0	6.0	6.0
	25	2.0	27.0
	50	-2.2	47.8
	75	-6.2	68.8
	100	-10.4	89.6