



Carolina Power & Light Company

APR 06 1984

SERIAL: NLS-84-164

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR ADDITIONAL INFORMATION
NUREG-0737 ITEMS II.F.1.4/5/6

Dear Mr. Vassallo:

In a telephone conversation with your staff on February 26, 1984, Carolina Power & Light Company was asked to provide additional information concerning our submittal of March 9, 1984 on NUREG-0737 Items II.F.1.4, .5, and .6. Attached are our responses to the questions raised by your Staff. Should you have any further questions, please contact a member of our Licensing Staff.

Yours very truly,

S. R. Zimmerman
Manager

Nuclear Licensing Section

MAT/cfr (9825MAT)

Enclosure

cc: Mr. D. O. Myers (NRC-BSEP)
Mr. J. P. O'Reilly (NRC-RII)
Mr. M. Grotenhuis (NRC)

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TMI ACTION ITEM II.F.1.4

Question 1:

One channel has a recorder. It is a recorder or a recorder/indicator?

Response:

The Bailey Model SR-1310 recorder, utilized as instrument tag number CAC-PR-1257-1, is an indicating recorder.

Question 2:

Stability refers to long-term drift, typically shown as value/time (for example 0.25%/6 months). What time period is associated with the stability value?

Response:

For the Rosemount Model 1152 pressure transmitters utilized as instrument tag numbers CAC-PT-4175 and 4176, the stability is $\pm 0.25\%$ of upper range limit for six months.

Question 3:

A sudden temperature spike is seen at the time of the accident. When and at what level will the temperature level-off?

Response:

At the location of the pressure monitoring system transmitters, the post-accident temperature spikes to approximately 210°F, holds for about 17 minutes and then steadily decreases to a stable temperature of 135°F during the next 125 minutes.

Question 4:

Clarify the meaning of the terms "general accuracy" and "linearity".

Response:

The linearity value should be considered as a subcomponent of the vendor's stated overall accuracy. The only instruments for which a linearity value was considered were the Bailey recorders tagged as CAC-PR-1257-1 and CAC-LR-2602. The catalog information specifically describes this value as "Independent Linearity". Since independent linearity is a measure of deviation from a straight line that is positioned on a characteristic curve so as to minimize the maximum deviation, it will usually be a somewhat tighter tolerance than the general accuracy value. In each case where the linearity uncertainty value has been included in the overall module and loop uncertainty calculations, the effect is conservative in that the uncertainty factors are inflated rather than decreased.

Deletion of the linearity (S_{R2}) from the calculations gives the following results:

II.F.1.4 (Loop No. 1, Paragraph 2c1 of Attachment 1 of the March 9, 1984 submittal)

$S_{\text{(total system)}}$ - normal ambient temperature conditions
was: $\pm .65$ psig becomes: $\pm .61$

$S_{\text{(total system)}}$ - maximum accident temperature conditions
was: $\pm .66$ psig becomes: $\pm .63$ psig

II.F.1.5 (Loop No. 2, Paragraph 3c2 of Attachment 1 of the March 9, 1984 submittal)

$S_{\text{(total system)}}$ - normal ambient temperature conditions
was: ± 1.13 inches becomes: ± 1.12 inches

$S_{\text{(total system)}}$ - maximum accident temperature conditions
was: ± 5.07 inches becomes: ± 5.06 inches

TMI ACTION ITEM II.F.1.5

Question 1:

One channel has a recorder. It is a recorder or a recorder/indicator?

Response:

The Baily Model SR-1110 recorder, utilized as instrument tag number CAC-LR-2602, is an indicating recorder.

Question 2:

What is the time period associated with the stability factor (see question 2 for Item II.F.1.4)?

Response:

For the Rosemount Model 1153 transmitters, utilized as instrument tag number CAC-LT-2601 and 2602, the stability is $\pm 0.25\%$ of upper range limit for six months.

Question 3:

When and at what time will the post-accident temperature level off?

Response:

At the location of the water level monitoring system transmitters, the post-accident temperature spikes to approximately 295°F, holds for about 70 seconds, decreases to 165°F over the next 60 minutes, and gradually decreases to a stable 135°F during the next 275 hours.

Question 4:

Where does the 16 ft. measurement span start and extend relative to the RHR suction line?

Response:

The 16 ft. measurement span ranges from plant elevation (-) 10' to (+) 6'. The bottom of the inside of the RHR suction line is at plant elevation (-) 9' 11 5/8", just above the minimum range of the instruments.

Question 5:

Where does the 16 ft. measurement span start and extend relative to the NUREG-0588 requirement for measurement from the bottom of the torus to 5 ft. above normal level?

Response:

The bottom of the torus is at plant elevation (-) 14' 5", which is 4' 6" below the minimum level measurable with the installed instrumentation.

Normal torus level is approximately plant elevation (-) 2' 5", upper measurable level is then approximately 8' 7" above normal torus level.

TMI ACTION ITEM II.F.1.6

Question 1:

What time period is associated with the stability value (see Question 2 for Item II.F.1.4)?

Response:

The stability of the Teledyne Model 225CMA is $\pm 2.0\%$ of full scale for 30 days.

Question 2:

Describe the multipoint-recorder.

Response:

The L&N Seedomax M Mark II multipoint recorders are 6-point recorders set up to operate on only 2 points. This is a point-printing type recorder rather than a pen tracing type.

Question 3:

Does the recorder monitor both channels?

Response:

There are two separate recorders. One records both the hydrogen and oxygen channels from the 4409 Analyzer System. The other records the hydrogen and oxygen channels from the 4410 Analyzer System.

Question 4:

Is the recorder also an indicator?

Response:

This recorder has an indicating feature, but it is not continuous. The indicating pointer tracks with the print wheel mechanism. Hence, it alternately indicates one channel (either hydrogen or oxygen) and then the other.