Nebraska Public Power District

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LQA8200155

June 16, 1982

U.S. Nuclear Regulatory Commission
Attention: Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
Washington, DC 20555

Subject: NUREG-0737, Items II.F.1.4, 5, and 6
"Containment Pressure, Level, and Hydrogen"

Dear Mr. Vassallo:

Your letter of May 17, 1982 requested confirmation that information contained in a phone conversation record was correct. The information which is circled in the attached record has been reviewed by the District. The remaining information was provided by the contractor and has not been verified. Corrections should be made as follows:

Item A1:

The "second monitor" has a dual range of 0-20% and 0-10%.

Item A2 and A4:

Our technical manuals identify sensitivies and accuracies as a percentage of input span and not as a standard deviation as indicated by the contractor.

Item A4:

The torus transmitter has a range of 0-30 ft.

Item A5:

There is one hydrogen sample port in the torus.

Item A7:

The Beckman Instruction Manual gives an accuracy of "$\pm$ 2% of full scale" and the Bendix Operation and Service Manual gives an accuracy of "$\pm$ 1% of range".

A046

If you have any questions concerning this information, please contact my office.

Sincerely,

Jay M. Pilant
Division Manager of Licensing
and Quality Assurance

JMP:JDW:cmk

Attachment

Note: See Appendix for definitions and abbreviations.

Q1. The review we are discussing is the Containment Systems Branch (CSB) part of the total review discussed in NUREG-0737. The CSB review consists of all items discussed under "Position" and "Clarification" except the review of compliance to the Appendix B criteria, and the review of the measurement system completion dates.** In the submittals we received to date, you have not indicated that you plan to take exception to any of the NUREG-0737 criteria in our area of review. Are you planning any exceptions in our area of review of which we are not aware.

A1. There is just one item which we don't regard as an exception of any importance. NUREG-0737 requires that the hydrogen monitors have a range of 0% to 10%. Cooper has one monitor with a range of 0% to 5% and the second monitor has a range of 0% to 20%.

Q2. What is the accuracy of your pressure monitor? State this for both the indicator and the recorder.

A2. There is only one readout device - the recorder, which also serves as an indicator.

There are two pressure monitors, the low range which extends from -5 psig to +5 psig, and the high range which extends from 0 psig to 250 psig.

Both systems have the same uncertainty.

Transmitter SD = 0.5%. Recorder SD = 0.25%.

System SD = RSS (0.5%, 0.25%) = 0.56%.

Q3. What is the time response of your pressure monitor? State this for both the indicator and the recorder.

A3. The transmitter goes from 10% to 90% output in 180 milliseconds on a step function input. Assume a first order transfer function $\exp(-t_1/TTC) = 0.9$

$t_1/TCC = 0.105$ $\exp(-t_2/TTC) = 0.1$ $t_2/TTC = 2.302$

$\Delta t = t_2 - t_1 = 0.18$ sec. $= (2.302 - 0.105) *$ TTC Transmitter Time Constant = TTC = 0.08 sec.

The Recorder goes from 10% to 90% in 3 sec., or 0% to 63% in 2.4 sec.

**The environmental qualification and request for schedular relief for II.F.1.4, II.F.1.5, and II.F.1.6 will be dealt with separately.

Q4. What is the accuracy of your water level monitor? State this for both the wide range instrument and the narrow range instrument.

We have separate water level monitors for the torus and the drywell. On each system there is only one readout device, the recorder, which also serves as an indicator.

The uncertainties in these systems are as follows:

Drywell Transmitter SD = 0.5%. Recorder SD = 0.25%
Torus Transmitter SD = 1.0% [Range 0 ft. - 20 ft.]
Drywell System SD = RSS (0.5%, 0.25%) = 0.56%
Torus System SD = RSS (1-0%, 0.25%) = 1.03%

Q5. Where are the hydrogen sample ports placed?

A5. There are three hydrogen sample ports on the drywell at elevations 13 feet, 43 feet, and 78 feet above the bottom of the drywell and ~~two~~ ports in the torus.

Q6. Is there any obstruction which would prevent hydrogen, escaping from the core, from reaching the hydrogen sample ports quickly?

A6. No.

Q7. What is the accuracy of your hydrogen monitor?

A7. Both hydrogen monitors have only one readout device; the recorder, which also serves as an indicator.

The hydrogen monitors come as units with total uncertainty specified for the whole unit.

Beckman Monitor: Range 0% - 20%, Accuracy 5%
Bendix Monitor: Range 0% - 5%, Accuracy 2%