DUKE POWER

March 19, 1992

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C.   20555

Subject: Catawba Nuclear Station
            Docket Nos. 50-413 and 50-414
            Reply to Request for Additional Information
            TAC NOS. M81291, M81292

Attached is a response to the subject request for additional information. In your letter dated February 11, 1992, four concerns were identified as needing additional information or clarification to complete your review. The four concerns involved (1) addressing inleakage into the control room air handling units, (2) redefining the pressurizing filter train flow rate, (3) clarifying the minimum flow required to pressurize the control room, and (4) submitting these changes on the latest approved Technical Specification revisions. Each of these concerns is addressed below and shown, as appropriate, on the attached Technical Specification sheets.

The first concern involves being able to quantify and justify the potential inleakage into a control room air handling unit. During a site inspection in January, 1992, a small leak was found in a flexible connection on 2CR-AHU-1. This flexible connection will be repaired to insure there is no inleakage prior to implementation of the TS change. Surveillance and maintenance procedures have been implemented to insure inleakage into a control room air handling unit is minimal. Additionally, the dose analysis has been revised to include 30 cfm of unfiltered inleakage. The original dose analysis included only 10 cfm. The extra 20 cfm provides additional margin of safety in the dose analysis. It should be emphasized that, even with this increased inleakage assumption, the dose analysis is still well below GDC-19 limits (See Attachment 1).

The second area of concern involved the pressurizing filter train flow rate. The original submittal requested that this flow rate be 5,000 cfm ± 20% under all conditions. Per discussions with your staff, we are amending this flow rate to 5,200 cfm ± 10% under standard test conditions. The Technical Specification bases have been updated to reflect this flow rate is a test parameter and not a range that determines operability.
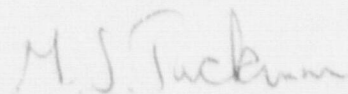
A001

The third area of concern involves changing Technical Specification surveillance requirement 4.7.6.e.3 to specify the minimum flow that will pressurize the control room. The surveillance requirement will be changed to reflect that the minimum pressurization flow is 2,000 cfm. This is shown on the attached marked-up Technical Specification sheets.

The fourth concern raised in your letter involves submitting the requested changes on the latest revision of Technical Specifications. This has been done and the appropriate sections are attached (Attachment 2). It should be noted that the original proposal was submitted on the latest Technical Specification sections. However, since it was first submitted another revision of the Technical Specifications was issued.

The work associated with this Technical Specification amendment is scheduled to be completed prior to the upcoming outage. Therefore, we are requesting that review and approval of this Technical Specification amendment be completed prior to June 1, 1992.

If you have any further questions or require clarification of this material please call Mary Hazeltine at 803-831-3080.

Very truly yours,

M. S. Tuckman

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MHH/vcsup

Attachments

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Attachment 1

It is proposed that the ESF design of the Control Room Ventilation (VC) System be modified from a recirculation pressurized system with a dual intake design to a once-through pressurized system with a dual intake design. In a once-through pressurized system **only three parameters** are necessary to calculate the Iodine Protection Factor (IPF) for the VC system assuming that the system maintains the control room pressure boundary at 1/8 inch positive pressure. These three parameters are:

(1) Pressurization flow rate to the control room,

(2) Iodine removal filter efficiency, and

(3) Unfiltered air infiltration rate.

For the first parameter, the minimum pressurization flow rate needed to maintain the control room pressure boundary at a positive pressure of greater than or equal to 1/8 inch w.g. relative to adjacent areas will be specified in Catawba Technical Specification 3/4.7.6 "Control Room Area Ventilation System" as 2000 cfm to the control room. For the second parameter, test criteria are given in the Surveillance Requirements of Tech Spec 3/4.7.6 to assure that the carbon and HEPA filters can remove 99 percent of the iodine from the influent. The third parameter is conservatively assumed to be 30 cfm. (Note: Per Standard Review Plan (SRP) 6.4, "Control Room Habitability System," only 10 cfm of unfiltered air is assumed in the dose analysis for pressurization systems).

Figure 4 from the Murphy-Campe paper (see enclosure) gives the IPF equation for a recirculation pressurized system as follows:

$$IPF = \frac{F_1 + \eta F_2 + F_3}{(1 - \eta) F_1 + F_3} \qquad \text{EQUATION 1}$$

where:

F_1 = rate of filtered outside air intake

F_2 = rate of filtered air recirculation

F_3 = rate of unfiltered outside air infiltration

η = filter efficiency/100

In the proposed VC System modification the rate of filtered air recirculation (F_2) would equal 0 cfm, and EQUATION 1 simplifies to:

$$IPF = \frac{F_1 + F_3}{(1 - \eta) F_1 + F_3} \qquad \text{EQUATION 2}$$

Substituting the above values into EQUATION 2 yields a calculated IPF of 40.6 as shown below:

$$IPF = \frac{2000 + 30}{(1 - 0.99) \, 2000 + 30} = \frac{2030}{50} = 40.6$$

This IPF value changes the calculated cont.ol room operator thyroid dose from 8.45 Rem (Reference Revision 7 to Duke Power Company's Control Room Operator Dose calculation, provided to Jack Hayes) to 14.9 Rem. Based on the GDC-19 equivalent thyroid dose limit of 30 Rem, the revised CNS control room operator thyroid dose is still at an acceptable level.

Attachment 2