

July 15, 1988

Docket Nos. 50-327/328
and 50-390/391

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Mr. S. A. White
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING MAIN STEAM LINE BREAKS
IN ICE CONDENSER PLANTS - SEQUOYAH UNITS 1 AND 2 AND WATTS BAR
UNITS 1 AND 2

Re: NRC letter to TVA dated April 8, 1988

In the above referenced letter on the same subject, the staff requested additional information on a Westinghouse topical report. The information was needed by the staff's contractor to complete its confirmatory analysis of WCAP-10986P, "Ice Condenser Drain Test Results, Data Analysis, and Development of Drain Flow Models for the LOTIC-III Ice Condenser Code." You responded by letter dated June 1, 1988.

In reviewing your response, it has been determined that additional information is needed. A request for additional information which is needed by our contractor to complete the confirmatory analysis is enclosed. We request that you provide this information within 45 days of receipt of this letter. If you have any questions regarding the enclosure or are unable to meet the requested response date, please contact J. Donohew at (301) 492-0704.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

8807220333 880715
PDR ADOCK 05000327
P PNU

Original Signed by
Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Enclosure:
Request for Information

cc w/enclosure:
See next page

OSP:TVA/LA
MSimms
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Sincerely,

Original Signed by
Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

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Mr. S. A. White
Tennessee Valley Authority

Sequoyah Nuclear Plant

cc:

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Tennessee Valley Authority

Watts Bar Nuclear Plant

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Honorable Johnny Powell
County Judge
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Tennessee Department of Health
and Environment
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Honorable Dan Wade
County Judge
Rhea County Courthouse
Dayton, Tennessee 37321

**ADDITIONAL INFORMATION NEEDED TO PREPARE COMMIX INPUT
FOR MODELING THE CATAWBA ICE CONDENSER CONTAINMENT
AFTER REVIEWING THE WESTINGHOUSE REPORT WCAP-10988, ADDENDUM 1**

1. The volume porosity or actual fluid volume at each basic mesh cell in COBRA-NC/Model 3

In response to question 3: "....It is not the volume porosity defined by the equation shown in the question. The volumes listed in Table 5.2 are those occupied by fluid in each cell; they are not the total control volume for the cell."

- a. The above statement is incorrect, because by using the radii and dividing angles as given in Fig. 1, or by the inspection of the values in Table 5.2, it can be shown that the volumes listed in Table 5.2 are the total control volume for the basic mesh cells for COBRA-NC/Model 2.
- b. Page 77 of the WCAP-10988 report: "The nominal and actual volume and the hydraulic diameter for each cell are given in Table 5.2."

Since the actual volume is not listed in Table 5.2, does the above statement indicate that it can be calculated from the product of the nominal volume and the porosity? If so, what values of volume porosity are used for levels 9 and 10 in Model 3? If the porosity listed in Table 5.2 is not the volume porosity as defined by COMMIX, please provide the volume porosity or the actual volume occupied by fluid at each basic cell in COBRA-NC/Model 3.

2. The surface porosity or the actual flow area at each basic mesh cell in COBRA-NC/Model 3

In response to question 3: "For the transverse directions, the flow areas are given by (gap width)*(cell height)." By checking the information given in Fig. 1, these flow areas are the nominal flow areas. Please provide the actual flow areas in the transverse directions for each basic cell.

3. The hydraulic diameters in the transverse directions

In response to question 2:

"In the transverse directions, the flow areas are calculated differently by (gap width)*(cell height). The wetted perimeters are calculated internally in the code based on the length of the gap, the numbers of the walls, and the height of the cell. These parameters are entered into the code by INPUT DATA LINES 354-369."

Since the flow areas are the nominal flow areas and the wetted perimeters are calculated internally, the hydraulic diameters can not be calculated from the available information in the report. Please provide the values of hydraulic diameters in the transverse directions used in COBRA-NC/Model 3 calculation.

4. The tabulated mass flowrates through the ice condenser doors as a function of time at each sector

In the Westinghouse response to question 7, the mass flowrates through doors 32a, 32b, and 32c are given in Tables 1, 2, and 3. Please explain how to use these tables and also provide the mass flowrate through the rest of the ice condenser doors, i.e., doors 8, 12, 16, 20, 24, 28, and 36. Please provide more detailed information at different time steps if it is available.

5. The location and dimension of the 8-foot high pipe tunnel underneath the spent fuel storage area

In the response to question 5, Westinghouse did not provide the dimension of the pipe tunnel. Please provide the location and dimension of the tunnel and describe its functions and importance in the lower containment.

6. Explanation of the variation tables listed in the INPUT DATA LINES 872-1748

From the response to questions 3 and 4, it indicates that the variation tables for the axial area multipliers, the axial perimeter multipliers, the axial loss coefficients, and the lateral loss coefficients used in COBRA-NC are given in INPUT DATA LINES 872-1748. Please explain how these tables are used in Section B of Model 3, where 9 axial levels are used to model the lower containment.