

Westinghouse Electric Corporation **Energy Systems** 

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NTD-NTD-94-4161 DCP/NRC0102 Docket No.: STN-52-003

June 7, 1994

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

ATTENTION: R. W. BORCHARDT

SUBJECT: LOADS AND LOAD COMBINATIONS FOR INDEPENDENT ANALYSES OF THE AP600 CONTAINMENT VESSEL

Dear Mr. Borchardt:

The following is provided to document the responses to questions from Lowell Greimann, Ames Lab. The questions and responses are provided below. These responses were discussed by Richard Orr and Tom Cheng during the meeting in San Francisco the week of May 1, 1994.

- What is the operating pressure? ANSWER: The operating pressure is specified to be in the range of -0.2 psig to 1.0 psig.
- 2. What is the operating temperature? ANSWER: The operating temperature is specified to be in the range of -40°F to 120°F. This temperature is the metal temperature and can be expected to be different above and below the 132' floor in the shield building annulus.
- What is the temperature associated with 2.5 psig and 3.0 psig external pressure? ANSWER: The external pressure (2.5 psig and 3.0 psig) is associated with the operating temperature.
- Are we also to analyze the containment for 3.0 psig external pressure and, if so, what loads should it be combined with?
   ANSWER: NRC requested that analyses should be performed for SSE concurrent with the 3.0 psig external pressure.
- Should wind be combined with SSE in Level C analysis?
  ANSWER: Analyses are not required at this time for wind loads. Note that Westinghouse transmitted WCAP-14068 on the wind tunnel tests on June 6, 1994 with letter number NTD-NRC-94-4156.

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6. The accident temperature is given as 280 degrees. An uneven temperature distribution associated with striping was also been given to Ames Lab (Loss of Coolant Accident -- Temperature Profile). Are these two different temperature assumptions for the same accident or are there two temperature distributions associated with two different accidents? ANSV ER: The analyses should consider two different temperature distributions (280°F uniform, and the striping case) which are associated with the same design basis accident.

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Should tornado loading be combined with accident loadings?
 ANSWER: Tornado loading should not be combined with accident loadings.

It would be appreciated to have results of individual load cases from the Ames Lab analysis available for comparison with the CBI analyses. The individual cases should include:

Dead load Design pressure (45 psig) Design temperature (280°F) Design temperature (striping due to wet and dry strips) SSE - north-south SSE - east-west SSE - vertical

These should then be combined following the load combination table given in the SSAR plus the additional combination for SSE + external pressure of 3 psig.

If you have any questions, please contact Donald A. Lindgren at (412) 374-4856.

Nicholas J. Liparulo, Manager Nuclear Safety Regulatory and Licensing Activities

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cc: Tom Cheng Lowell Greimann Brian McIntyre NRC Ames Lab Westinghouse