

MARK III CONTAINMENT HYDROGEN CONTROL OWNERS GROUP

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December 27, 1985

HGN-067

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Robert Bernero

Dear Mr. Bernero:

Reference: 1) Letter from HCOG (Hobbs) to NRC (Bernero), Evaluation
of Scoping Test Results, HGN-053, dated August 1,
1985
2) Letter from HCOG (Hobbs) to NRC (Bernero), Hydrogen
Release Histories and Test Matrix for 1/4 Scale
Test Program, HGN-031, dated March 13, 1985

Subject: Scoping Tests S.01, S.02 and S.03

In a September 9, 1985 telephone conversation between an NRC staff member and the Hydrogen Control Owners Group (HCOG) Administrative Program Manager, HCOG was requested to provide a more detailed discussion of the results of scoping tests S.01, S.02 and S.03. The HCOG Administrative Program Manager had indicated that these tests are now considered shakedown tests, and that any data produced from these tests had not, and would not be used by the HCOG to support any of the tasks and goals defined for the scoping and production test program in the HCOG Program Plan. As noted in both the July 17, 1985 HCOG-NRC meeting and in Reference 1, the hydrogen injected into the 1/4 scale test facility for scoping tests S.01, S.02 and S.03 had been insufficient to pressurize the sparger ring header. This resulted in an uneven distribution of hydrogen to the active spargers, and an unrepresentative hydrogen burn environment.

The concern with the validity of test data produced from scoping tests S.01, S.02 and S.03 was identified following the completion of these tests. An evaluation was initiated to determine if the hydrogen flow used during these tests had been adequate to provide the required pressurization of the ring header which supplied hydrogen to the active spargers. It was postulated that the hydrogen flow alone was inadequate to provide a balanced flow distribution throughout the ring header and active spargers. This was based on the fact that the orifices which regulated flow to each active sparger were designed assuming the differential pressure occurs in the presence of simultaneous steam and hydrogen injection.

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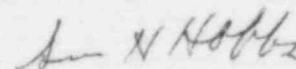
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To complement the ongoing facility evaluation, a test was completed in which air was injected into the ring header and through the spargers to simulate the hydrogen flowrate used in tests S.01, S.02 and S.03. Visual observation indicated that very little air flow passed through the spargers between the 15° and 150° azimuths. This test, therefore, confirmed that hydrogen flow alone is inadequate to properly drive a balanced flow distribution throughout the test facility's hydrogen distribution system (i.e., ring header, orifice plates and spargers).

Consequently, HCOG regards the test data recorded in Tests S.01, S.02 and S.03 as non-representative of the test configuration used in these tests. In order to better define a base line for repeatability evaluations, HCOG conducted two additional scoping tests (S.05.1 and S.05.2) configured identical to S.05. Repeatability of the data produced in these tests is fully discussed in Reference 1. In order to support the HCOG Program Plan goal of assessing the effect of steam on hydrogen burn events, scoping test S.05.3 was conducted with steam injection at two to three times the rate injected in tests S.05 through S.05.2. The results of these tests were also presented in Reference 1.

This submittal was compiled by HCOG from the best information available for submittal to the Nuclear Regulatory Commission. The submittal is believed to be complete and accurate, but it is not submitted on any specific plant docket. The information contained in this letter and its attachments should not be used for evaluation of any specific plant unless the information has been endorsed by the appropriate member utility. HCOG members may individually reference this letter in whole or in part as being applicable to their specific plants.

Very truly yours,



Sam. H. Hobbs

SHH:bms
Attachment

cc: (See Next Page)

cc: Mr. Lester L. Kintner
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