PSE&G

Public Service Electric and Gas Company 80 Park Place Newark, N.J. 07101 Phone 201/430-7000

September 5, 1980

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

Attention: Mr. Frank J. Miraglia, Chief
Licensing Branch 3
Division of Licensing

Gentlemen:

II.B.1 HIGH POINT VENT
NO. 2 UNIT
SALEM NUCLEAR GENERATING STATION
DOCKET NO. 50-311

PSE&G hereby submits, in the enclosure to this letter, its response to your request for additional information regarding RCS vents, dated August 26, 1980.

Should you have any questions in this regard, do not hesitate to contact us.

Very truly yours,

R. L. Mittl
General Manager -
Licensing and Environment
Engineering and Construction

CC: Mr. Leif Norrholm
Salem Resident Inspector

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ADDITIONAL INFORMATION
RCS VENTS
NO. 2 UNIT
SALEM NUCLEAR GENERATING STATION

Question 1

Provide a description of pressurizer vent system per the guidelines of our November 9, 1979 letter.

Response

Description was provided in PSE&G letter, R. L. Mittl to O. D. Parr, dated January 4, 1980.

Question 2

Describe procedures that assure sufficient liquid or steam can enter U-tubes to provide effective heat removal through the steam generator.

Response

The high points created by the tube bundle in the steam generator cannot be vented. A recent Westinghouse study, WCAP 9600, "Report on Small Break Accidents for Westinghouse NSSS System", June, 1979, has concluded, however, that only a small amount of non-condensibles would be present during any transient which would depend significantly on the steam generators for decay heat removal. It further concluded that the presence of a small amount of noncondensibles would not significantly impact natural circulation in the system.

Question 3

Demonstrate that the vent system is designed to RPS safety guide standards, e.g., seismic qualification, IEEE-279, position indication for all vent valves.

Response

Response was provided in PSE&G letter, R. L. Mittl to O. D. Parr, dated January 4, 1980.

Question

Provide justification that the thermal-hydraulic modeling for your analyses of a vent line break is consistent with the break location. Provide a comparision of flow distribution characteristics and depressurization rates.

Response

The reactor head vent is connected to the reactor vessel through a 3/4" size nozzle and the same size piping. The pressurizer PORV serves as a vent and is connected to the pressurizer through a 4" nozzle and the same size piping. A break in any of these vent lines is considered as an infrequent fault and is covered in the FSAR Section 14.2.1 as a loss of reactor coolant accident resulting from a small bore ruptured pipe. The analysis presented in the FSAR shows that the high head portion of the emergency core cooling system together with the accumulators provide sufficient core flooding to keep the calculated peak clad temperature below the required limits of 10CFR50.46.

The analysis presented in the FSAR for the small bore rupture accident is based on the analyzed break size of 3" to 6" diameter. A recent Westinghouse report, WCAP-960, "Small Break Accidents for Westinghouse NSSS System", has provided analysis for break size less than 3" as well as up to 6". This report analysis revalidates the FSAR analysis for the small bore rupture accident as indicated earlier.

The 3/4" reactor head vent piping falls into the category of the break size 3/8" < diameter < 1" as analyzed in WCAP-9600. For this size break, the report concludes that the core remains covered throughout the transient even with a minimum of safety injection, provided the safety injection flow is not interrupted. The report also establishes that the system stabilizes at a pressure, which is the pressure where the safety injection flow matches the break flow, well above the accumulator set pressure. No clad heat-up is expected for the head vent size break because no core uncovery is expected during such transient.

In view of the above discussion, it is expected that the present envelope of accident analyses remains valid and that no new analysis of a loss of coolant accident initiated by the RCS vent is required.

Question 5

Provide procedural guidelines and analytical bases (preferably, generically developed by Owners Group) for vent operation and termination as related to plant performance. The procedures should be based on the following criteria: (1) the plant must meet the requirements of 10 CFR 50.46 and 10 CFR 50.44 for DBA's; and (2) the plants ability to maintain core cooling and containment integrity for events beyond DBAs must be increased. Procedures should also address methods to (1) assure natural circulation through the U-tube portions of the steam generator with the potential accumulation of gases in this region, and (2) assure that combustible limits are not exceeded.

Response

Procedural guidelines are being jointly evaluated by the Owners Group, Westinghouse and the individual utilities.

Compliance with 10CFR 50.46 is discussed in the response to question 4. Compliance with 10CFR 50.44 is adjudged to be complied with based on the following considerations.

Total hydrogen accumulated from all sources inside the containment was restudied (apart from FSAR Section 14.3.6 analysis) in the light of the TMI incident. The attached graph shows the hydrogen accumulations from various sources, with and without the operation of one or both of the hydrogen recombiners.

As is evident from the graph, the hydrogen concentration limit of 4 v/o (i.e., 4 percentage hydrogen concentration by

volume) as required by Regulatory Guide 1.7 is satisfied with adequate margin by operation of only one of the two hydrogen recombiners.

Containment air sampling capability exists at Salem and post LOCA containment air sampling capability is being installed. The Containment Ventilation System has the capability to purge the containment atmosphere.

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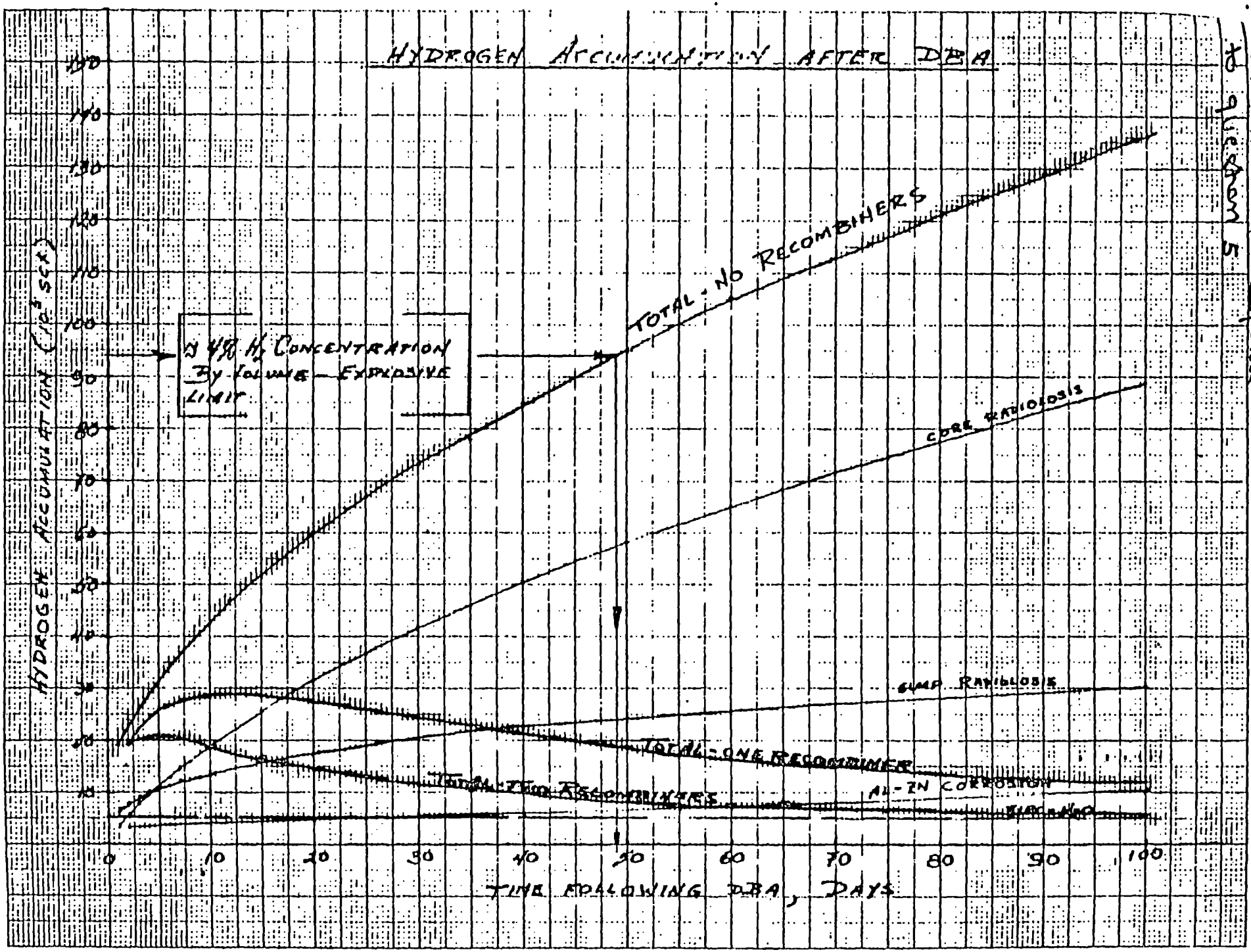

Attached to question 5