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DCS MS-016

Docket No. 50-285

Mr. W. C. Jones
Division Manager, Production
Operations
Omaha Public Power District
1623 Harney Street
Omaha, Nebraska 68102

Dear Mr. Jones:

SUBJECT: REACTOR COOLANT SYSTEM VENTS (ITEM II.B.1)
REQUEST FOR ADDITIONAL INFORMATION

We have completed a preliminary review of your submittals dated October 6, 1980, July 1, 1981, September 17, 1981 and December 28, 1981 regarding TMI Action Plan Item II.B.1, RCS High Point Vents. The additional information identified in the attachment is required to complete our review for your facility.

We are currently in the process of reviewing the technical merit of the proposed operating guidelines for RCS Vent usage. We recommend that the questions in this area be resolved generically through the Owners Groups. Specific plant procedures will be reviewed against the approved guidelines as needed in the future, but not necessarily prior to design approval.

Please supply the requested information within 60 days of the date of this letter.

The reporting and/or recordkeeping requirements contained in this letter are approved under OMB clearance #3150-0065 which expires May 31, 1983.

Sincerely,

Original signed by
Robert A. Clark

Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Enclosure:
Request for Additional
Information

cc w/enclosure:
See next page

OFFICE	ORB#3:DL	ORB#3:DL	ORB#1:DL	ORB#3:DL			
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DATE	3/ /82	3/ /82	3/ /82	3/4/82			

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REQUEST FOR ADDITIONAL INFORMATION

FOR

FORT CALHOUN 1

1. Based on our review of the "Procedural Guidelines for Reactor Coolant Gas Vent System for Omaha Public Power District Fort Calhount Unit No. 1", provided as part of your RCGVS submittal in response to NUREG-0737 Item II.B.1, we require the following additional information:

   a. Provide operating guidelines on the methods and instrumentation (no direct reactor vessel measurement) used to detect and determine the volume of gases in the reactor coolant system (RCS). Also describe the indications expected during reactor vessel head venting, if non-condensible gases are trapped in the RCS loops.

   b. Supplement section 4.0 (Emergency Plant Operations) to describe measures required before initiation of RCS venting. The measures could include for example, verification of the containment isolation, starting of all available containment air mixing systems, and bringing the RCS to steady-state conditions with a pre-determined minimum sub-cooling and pressurizer water level.

   c. It appears from the guidelines that venting is terminated after the predetermined venting time has elapsed. However, we believe that venting should be terminated following a significant change in plant parameters, such as rate of pressurizer level and/or pressure variations. Furthermore, venting should be terminated when the pressurizer level decreases or increases to a specified level, when reactor coolant sub-cooling decreases below a specified value, when pressurizer pressure decreases by a specified increment, or when the containment hydrogen level increases above a specified value. Revise the procedural guidelines to include clear and specific guidelines for operator termination of reactor vessel head and pressurizer venting.

   d. Figure 19 "RCGVS Accident Response" of the procedural guidelines

states that the charging pump(s) should be placed into operation prior to venting the pressurizer "if necessary". Define and justify when the charging pump(s) should and should not be used while venting the pressurizer.

e. It is the NRC position that your guideline on p. 9 concerning the decision to continue venting the reactor vessel if the containment hydrogen levels approach combustible levels is too absolute and should be revised to state that while this guideline should be generally followed, the decision must be based on full consideration of all plant conditions including the status of core cooling and the containment hydrogen le . Therefore, guidance should be provided to the operator for imating the expected change of hydrogen concentration in the containment as a function of vent time.

f. Provide operating guidelines which in lieu of venting will assure that sufficient liquid or steam will flow through the steam generator U-tube region so that decay heat can be effectively removed from the RCS (reference Clarification C.(2)).

2. Verify that the flow restriction orifice provided in each vent path will limit reactor coolant leakage to less than the capacity of the reactor coolant makeup system by providing the pertinent design parameters of the reactor coolant system charging pumps and a calculation of the maximum postulated rate of loss of reactor coolant through a RCGVS flow restriction orifice (reference NUREG-0737 Item II.B.1 Clarification A.(4)).

3. Demonstrate that internal missiles and the dynamic effects associated with the postulated rupture of piping will not prevent the essential operation of the portions of the RCGVS that form a part of the reactor coolant pressure boundary (i.e., at least one vent path remains functional)(reference Appendix A to 10 CFR Part 50, General Design Criterion 4).

4. Verify that the following RCGVS failures have been analyzed and found not to prevent the essential operation of safety-related systems required for safe reactor shutdown or mitigation of the consequences of a design basis accident:

a. Seismic failure of RCGVS components that are not designed to withstand the safe shutdown earthquake.

b. Postulated missiles generated by failure of RCGVS components.

c. Fluid sprays from RCGVS component failures. Sprays from normally unpressurized portions of the RCGVS that are Seismic Category 1 and Safety Class 1, 2, or 3 and have instrumentation for detection of leakage from upstream isolation valves need not be considered.

5. Demonstrate, using engineering drawings and design descriptions as appropriate, that the RCGVS vent paths to the containment atmosphere (both direct and via the quench tank rupture disc) discharge into areas:

   a. That provide good mixing with containment air to prevent the accumulation or pocketing of high concentrations of hydrogen, and

   b. In which any nearby structures, systems, and components essential to safe reactor shutdown or mitigation of the consequences of a design basis accident are capable of withstanding the effects of the anticipated mixtures of steam, liquid, and noncondensible discharging from the RCGVS (reference NUREG-0737 Item II.B.2 Clarification a.(9)).

6. Clarification A.(11) of NUREG-0737 Item II.B.1 requires operability testing in accordance with subsection IWV of Section XI of the ASME Code for Category B valves. Although your submittal of July 1, 1981, committed to several of the operability testing requirements, other requirements, e.g., verification of positive valve position indication and testing of fail safe valve position, were not discussed. Verify that all requirements of subsection IWV for Category B valves will be met.