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CRUTCHFIELD,D. Operating Reactors Branch 5

SUBJECT: Suppls incident evaluation rept of 820125 steam generator tube rupture in response to 820413 request for addl info.

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LEON D. WHITE, JR.
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May 17, 1982

Director of Nuclear Reactor Regulation
Attention: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Supplemental Information
Incident Evaluation Report
Steam Generator Tube Rupture Incident
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Crutchfield:

This letter is in response to requests from your staff for additional information to supplement our Incident Evaluation Report, which was submitted by letter dated April 13, 1982. Short term actions which were requested and our responses are listed below.

1. Perform a check of control board light bulbs each shift.

   Response: As stated in our letter dated May 6, 1982, there were no burned out light bulbs on the control board during the steam generator tube rupture incident on January 25, 1982. Our May 6 letter also described a number of actions that are taken to ensure that burned out light bulbs are promptly identified and replaced. In addition, procedure O-6.7.1, "Plant Alarm Panel Test and Status Light Check" requires a check of all control board valve and breaker status lights each shift for detectable burned out bulbs. (Not all lights can be checked during plant operation. For example, the open position status light for a breaker which must be closed during operation cannot be checked each shift. The open light would be checked during the surveillance tests as described in our May 6 letter.)

2. Relabel the pressurizer PORV and block valve switches to describe switch operation.

   Response: The PORVs have been labeled "PCV 430 and 431C place in desired position." The block valves have been labeled "MOV 515 and 516 not required to hold in desired position."

D001
S1/0

3. Change Procedure E-1.4 to provide guidance on bubble formation and the actions to be taken.

   Response: This has been done (See Section 8.1 of our April 13, 1982 submittal and our letter dated May 5, 1982). As discussed with the NRC, no changes are required in procedure E-1.5, "Void Formation in Reactor Coolant System" or in procedure O-2.4, "Plant Shutdown from Hot Shutdown to Cold Shutdown during Blackout". E-1.5 addresses inadequate core cooling and has, as an entry condition, core exit thermocouple readings greater than 700°F. It is, thus, not appropriate for use in situations where adequate core cooling is being provided. O-2.4 addresses natural circulation cooldown, in the absence of any failures such as a tube rupture. It provides guidance on how to avoid upper head void formation and on actions to be taken if voiding of the upper head should occur. Excessive RCP seal leakage was also discussed with the NRC. Procedure series E-23 describes actions to be taken to respond to the RCP seal leak. If the non-faulted RCP remains in service, no upper head void would form. If both RCPs were tripped, the appropriate procedure would be used (e.g., O-2.4 which addresses natural circulation cooldown, or E-1.2, which addresses loss of coolant accidents).

4. Revise E-1.4 to include guidance to the operator on the rate of RCS depressurization when the pressurizer PORV is opened.

   Response: Such a caution will be added to E-1.4 prior to startup.

A number of longer term actions were requested. These actions, and our response, are provided below.

1. Modify the 1C safety injection pump logic to establish a fixed loading sequence and to provide a lockout feature to prevent automatic transfer of a fault at the load to the redundant bus.

   Response: Such a modification will be installed during our Spring 1983 outage (See Sections 5.8 and 8.2 of our April 13 submittal).

2. Within six months, reanalyze the radiological consequences of a steam generator tube rupture. The analysis should include the effect of overfilling the steam generator or evidence should be provided that overfilling will not occur.

   Response: The reanalysis will be performed.

3. Revise the setpoints and surveillance requirements for the effluent monitoring system.

   Response: The setpoints have been reviewed and revised. The setpoint for the steam line monitor is 0.1 mr/hr or less for the B steam line. (Background activity in the B steam line precludes a lower setting at this time.) The setpoints for monitor R15A will be set at or below the following levels.

range	alert setpoint	alarm setpoint	units
low	2×10^{-5}	2×10^{-4}	μCi/cc
mid	2×10^{-3}	2×10^{-2}	μCi/cc
high	0.2	2.0	μCi/cc

   Surveillance schedules have been established to require "check" and "test" on a monthly basis and "calibration" at refueling intervals.

4. Prior to December 1, 1982, develop procedures for snow sampling.

   Response: This will be done.

5. Within six months, consider procedure changes to reduce or prevent ventilation intake of contaminated air during unplanned releases.

   Response: This will be done. It should be noted that control building protection is already provided. Also, monitors on the plant vent will trip the auxiliary building supply fans on high radiation level.

6. Within six months, review the requirement for a safety injection signal to be present for automatic transfer of safety injection pump suction from the boric acid storage tanks to the refueling water storage tank.

   Response: This will be done.

7. Within six months perform a detailed thermal-hydraulic analysis of system behavior during the incident to verify phenomena, including void formation.

   Response: Such analyses are already in progress and will be completed.

8. Within six months, study the RCP trip criteria with the purpose of finding a method to keep the RCPs running during a steam generator tube rupture.

Response: The need to trip the reactor coolant pumps is based on analyses that have been performed of small break loss of coolant accidents. The basis for this requirement is well understood by plant operators, as evidenced by interviews of plant personnel by the NRC Task Force which prepared NUREG-0909. It is also noted that the requirement to trip the reactor coolant pumps does not create a safety problem. Nevertheless, to reduce the likelihood that the reactor coolant pumps will be tripped during events which do not require trip, prior to startup a reduced reactor coolant system pressurizer pressure will be used in the trip criterion (see our May 5, 1982 letter). It is recognized that the reduced pressure would not have changed the response to the January 25 incident. A study, as requested, will be performed and will include consideration of additional high pressure injection capability and alternate criteria.

9. Within six months, study the RCP restart criteria to ensure that proper criteria are employed.

Response: As described in our May 5 letter, procedure E-1.4 includes the requirement that a bubble exist in the pressurizer with indicated pressurizer level between 80% and 90% before RCP starts.

Two considerations lead to the pressurizer water level range which has been selected: ensuring that a bubble is present in the pressurizer and providing adequate inventory to compensate for a possible reactor vessel upper head void. The upper limit of 90% assures that a bubble exists in the pressurizer and provides a range on-scale for monitoring of level. The lower limit of 80% provides an adequate pressurizer water volume to compensate for collapse of an upper head void even if the entire head is voided. The 80% level corresponds to a pressurizer volume of approximately 600 ft^3. The reactor vessel head volume is approximately 305 ft^3. Thus, there is considerable margin provided in the level criterion which has been selected.

We have reviewed this criterion with Westinghouse and, while we believe this criterion to be proper, we will perform the requested study.

10. Within six months, review plant procedures to provide any additional guidance required for operator actions to be taken in response to real or suspected reactor vessel upper head voiding.

Response: This will be done.

11. Within six months, provide procedures for cooldown following a steam generator tube rupture.

    Response: This will be done. The two methods provided in Revision 3 of the Westinghouse Owners Group Procedure Guidelines will be implemented.

12. Within six months, provide procedures to cover a steam generator tube rupture with a failed open steam generator safety valve.

    Response: This will be done. Guidance of Revision 3 of the Westinghouse Owners Group Procedure Guidelines will be implemented.

13. Within six months, review the time response of simulators used for operator training of steam generator tube ruptures and implement any actions necessary to identify differences between the simulator and Ginna.

    Response: This will be done.

14. Confirm by test that the letdown system isolation modification functions properly and submit, within six months, a detailed design description.

    Response: The modification has been installed and testing has been completed. The requested information will be submitted.

15. Confirm by test that the wide range pressurizer pressure transmitter functions properly and submit, within six months, a detailed design description.

    Response: The modification has been installed and testing has been completed. The requested information will be submitted.

We believe this information is responsive to your request. Please contact us if clarification or further information is required.

Very truly yours,

L D White Jr.

L. D. White, Jr.