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GE Nuclear Energy

ABWR

Date 5/17/93

Fax No. _____

To Chet Poslusny / George Thomas

cc: J. Duncan
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Subject 19.9.1 CW Line Break Procedure

Message George:

For our telecon of 5/10/93, we are
revising 19.9.1 in its entirety.
Please see attached new 19.9.1.
Glenn Kelly has reviewed the old
19.9.1 and found it to be acceptable.
Please review the new 19.9.1 with
Glenn and let me know your
comments.

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Cal Tang
See attached
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ABWR
Standard Plant

23A6100ARS
REV. A

19.9 COL LICENSE INFORMATION

A review was conducted to determine actions which will be completed by the COL applicant.

The section represents the results of that review.

Post Accident Recovery
19.9.1 Event Specific Procedure For Unisolated CUW Line Break

An unisolated reactor water cleanup system (CUW) line break, although very unlikely to occur (Subsection 19E.2.3.3), could lead to reactor building flooding and eventual depletion of ECCS water sources if the break could not be isolated. Attempting to control RPV water level in the normal range could lead to a continuous coolant outflow through the break since the CUW suction nozzle and the RPV drain line connection to the suction line are below the normal RPV water level.

Since this is a very specific event, it was judged inappropriate to complicate the symptom-based Emergency Procedure Guidelines (EPGs) with actions to mitigate the event. An event-specific procedure will be developed by the COL applicant using the following guidance:

1. If a CUW break or leak occurs (as indicated by room sump levels, high flow, temperature indication, radiation level) and successful automatic or manual isolation does not occur (as indicated by lack of closed indication on at least one of the two CUW isolation valves or lack of zero flow indication), the following actions should be taken.
2. Scram and depressurize the RPV if these actions have not occurred automatically. Attempt to close the CUW isolation valves from the main control room. Close the RPV drain line globe valve from the main control room. Control RPV water level in accordance with the EPGs if at least one of the CUW isolation valves is closed. The level should be controlled between the top of the active fuel and 15 inches above the top of the active fuel if drain line closure is not successful. (The RPV drain line connects to the CUW suction line at this elevation). If drain line closure was successful, control water level between the top of the fuel and 5 feet above the top of the fuel. (The CUW suction line is about 6 feet above the top of the fuel). Use the temperature compensated fuel zone and wide range water level indication and pumps which can be throttled (CRD, RHR, condensate pumps).

SEE INSERT, ATTACHED

3. When practical, enter the CUW room and/or the containment and affect the necessary repairs.

19.9.2 Confirmation Of CUW Operation Beyond Design Bases

CUW can be used to remove decay heat under accident conditions by bypassing the regenerative heat exchanger as noted in section 19.3. This causes the non-regenerative heat exchanger to remove additional heat. However, this could lead to exceeding the design temperature limits of the CUW nonregenerative heat exchanger and some portions of the piping of the CUW and the reactor building cooling water (RCW) systems.

When the design of the CUW and RCW systems (including piping and support structures) is completed, the COL applicant must confirm that if the CUW is operating in the heat removal mode, the following areas will remain functional while operating outside their design basis temperature values:

1. The CUW nonregenerative heat exchanger.
2. The CUW piping downstream of the regenerative heat exchanger.
3. The RCW piping downstream of the nonregenerative heat exchanger.
4. The feedwater piping downstream of CUW injection.
5. Piping supports for the above piping.

19.9.3 Event Specific Procedures For Severe External Flooding

Internal flooding is addressed in Appendix 19R. The site selection process will take into account the worst case predicted flood. Then grade level and flood control methods (e.g., site grading) will be determined based on this predicted flood level. The grade level floor will be 0.3 meters above this predicted flood level. Therefore, external flooding should not be a major concern for the ABWR. To further reduce the susceptibility of external floods, plant and site specific procedures will be developed by the COL applicant for severe external flooding using the following guidelines:

1. Check the closed the watertight door between the turbine and service buildings;
2. Sandbag the external doors to the following:

19.9.1 Post Accident Recovery Procedure For Unisolated CUW Line Break

An unisolated reactor water cleanup system (CUW) line break, although very unlikely to occur (Subsection 19E 2.3.3), could lead to reactor building flooding and eventual depletion of ECCS water sources if the break can not be isolated. Attempting to control RPV water level in the normal range during post accident recovery operation could lead to a continuous coolant outflow through the break since the CUW suction nozzle and the RPV drain line connection to the suction line are below the normal RPV water level.

For a CUW break outside of the containment, the Secondary Containment Control Guideline of the symptom-based Emergency Procedure Guidelines (EPGs), Appendix 18A, provides the appropriate initial operator actions for isolation of CUW, scram the reactor, and depressurization of the reactor. The RPV Control Guideline of the EPGs (Steps RC/P-5, RC/L-3) provides the direction for proceeding to cold shutdown in accordance with a procedure which the COL applicant will develop. This COL applicant procedure for post accident recovery will be developed using the following guidance:

1. After RPV depressurization, attempt to close the CUW isolation valves and RPV drain line globe valve. If at least one of the two CUW isolation valves can be closed, control RPV water level in the normal range and initiate shutdown cooling operation.
2. If the RPV drain line globe valve can not be closed and at least one of the two CUW isolation valves can not be closed, control RPV water level between the top of the active fuel and 15 inches above the top of the active fuel. (The RPV drain line connects to the CUW suction line at this elevation).
3. If the RPV drain line globe valve can be closed and at least one of the two CUW isolation valves can not be closed, control RPV water level between the top of the active fuel and 5 feet above the top of the active fuel. (The CUW suction line is about 6 feet above the top of the active fuel).
4. When practical, enter the CUW room and/or the containment and affect the necessary repairs. When at least one of the two CUW isolation valves can be closed, control water level in the normal range and initiate shutdown cooling.

< TRANSACTION REPORT >

05-17-1993(MON) 15:15

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