From: Chawla, Mahesh
Sent: Wednesday, June 29, 2011 6:18 PM
To: Myers, Gregory R.
Cc: Sun, Summer; Ulses, Anthony; Pascarelli, Robert; Wengert, Thomas; Duvigneaud, Dylanne
Subject: PINGP - AST Methodology - ME2609 and ME2610

Greg,

On June 24, 2011, I sent you via e-mail, the list of questions/clarifications which NRC staff requested on your supplement dated June 22, 2011 (ML111740145). We had a teleconference today to discuss the requested information. As a result of the teleconference, the NRC staff has decided to revise the information requested on June 24, 2011. Following is the list of revised RAIs. Please arrange a teleconference to discuss this information so we can proceed further with evaluation of the subject license amendment request. Thanks

REVISED REQUEST FOR ADDITIONAL INFORMATION

(1) Table 2 lists the safety-related (SR), non-SR (NSR) and augmented quality (AQ) systems, components and instruments (SCIs) available for SGTR mitigation.

Please provide a definition of the AQ SSCIs, identify the NSR and AQ SCIs in Table 2 that are credited in the MTO or mass release analyses, discuss the functions of each identified SCIs, address the acceptability of each of the NRS and AQ SCIs for consequences mitigation assumed in the analyses for supporting the licensing applications, and demonstrate that the use of NRS or AQ SCIs meets the intent of use of the SR SCIs for design-basis analysis.

(2) The operator action delay times for RCS depressurization are 4 minutes used in the MTO analysis and 7 minutes in the mass release analysis listed in Tables 5, and 6, respectively.

Provide bases for the different operator action times used for RCS depressurization, while the operator action times for RCS cooldown initiation (19 minutes following reactor trip), SI termination (2 minutes) and charging flow termination (15 minutes) remain the same in the MTO and mass releases analysis. Discuss the acceptance criteria for the results of the simulator exercises in support of the operator action times (4, 2, 19, 15 minutes above) times credited in the analysis.

(3) Figures 11 and 16 show the RCS and SG pressures, and steam releases for the mass release analysis.

1. Figure 11 indicates that at about 2850 seconds, and 3100 seconds, there are sudden decreases in the intact SG pressure and RCS pressure, respectively. Explain the thermal hydraulic phenomena, mitigating systems, or operator actions that contribute to the decreases.

2. Figure 16 shows that for the ruptured SG, the steam releases suddenly increase and decrease between 100 to 200 seconds into the transient. At 800 seconds, the

releases suddenly increase and then decrease gradually, following a deep gradual decrease at 1300 second until 1500 seconds. After 1500 seconds, the releases become a small, constant rate. Explain the changes identified above for the steam releases through the ruptured SG. For the intact SG, the first significant steam releases occur between 1200 – 1900 seconds. This is due to the operator action that opens the SG PORV for RCS cooldown. Explain the causes for the second significant releases to occur after 2800 seconds until 4000 seconds when the presented results end.

(4) Figures 5 and 6 show the temperature transients for the intact and ruptured SGs, respectively.

Calculate the cooldown rates (0F/hr) from 1000-1626 seconds, and 1886 - 1900 seconds for the intact SG hot - leg outlet temperature shown in Figure 5, and the cooldown rate from 1300 – 2100 seconds for the rupture SG cold-leg outlet temperature shown in Figure 6. Justify the acceptance of the calculated cooldown rates by demonstrating that they are within the acceptable cooldown rate limit that assures the RCS integrity during the cooldown transient.

(5) Table 1 indicates that the reactor trip occurs at 49 seconds following the event initiation.

Specify the signal that actuates the reactor trip, discuss the trip point assumed in the analysis and show that it is within the TS value with inclusion of instrumentation uncertainties.

(6) The first paragraph on page 47 discusses the basis to support the conclusion that the original hand-calculated releases are the bounding result and remain valid.

Please provide data of the dose releases through the intact and rupture SGs for the pre-trip and post- trip, and other applicable conditions to support the stated conclusion.