**From:**       Michelle Honcharik
**To:**         Jerry Holm
**Date:**       4/30/04 4:32PM
**Subject:**    draft comment resolutions

Jerry,
Please see attached.
Michelle

## RESOLUTION OF COMMENTS

## ON DRAFT SAFETY EVALUATION FOR EMF-2310 REVISION 1,

## "SRP CHAPTER 15 NON-LOCA METHODOLOGY FOR

## PRESSURIZED WATER REACTORS"

1.    FANP Comment: Delete the last two sentences of the last paragraph of Section 3.3, and replace with Insert 1.

      NRC Action: This comment was partially adopted into the final SE. The last sentence was deleted. The second to last sentence was left as originally written in the draft SE and not replaced with proposed Insert 1, because ...

2.    FANP Comment: Delete Section 4.0, and replace with Insert 2. The boron dilution event analysis does not use the code S-RELAP5. FANP requests that the conditions in Section 4.0 of the SE be deleted since they are primarily related to the presumed use of S-RELAP5 for the analysis of the boron dilution event.

      NRC Action: The comment was partially adopted into the final SE. The first paragraph and conditions 1, 2, and 3, were deleted. The second paragraph was reworded to state "The parameters and assumptions used in the analysis should be suitably conservative. The following values and assumptions, as delineated in SRP Section 15.4.6, are considered acceptable." The comment was not fully adopted into the final SE because ...

      Additionally, the 9 parameters were not deleted, and are addressed in numbers 3 through 11 below.

3.    FANP Comment: Section 4.0, parameter/assumption 1 – This condition is only applicable if the code S-RELAP5 is used.

      NRC Action: The comment was not adopted into the final SE because ...

4.    .      FANP Comment: Section 4.0, Parameter/assumption 2 - This is a requirement which is stated in the topical report itself. The maximum unborated water charging rate is assumed for the analysis.

      NRC Action: The comment was not adopted into the final SE because ...

5.    FANP Comment: Section 4.0, Parameter/assumption 3 - This condition is only applicable if the code S-RELAP5 is used. The severity of the boron dilution event in not significantly dependent on moderator temperature coefficient, void coefficient, Doppler coefficient, axial power profile and radial power distribution because the pertinent phenomenon is the fluid mixing. A requirement to maximize the boron concentration is stated in the topical report itself. This requirement meets the intent of this condition.

      NRC Action: The comment was not adopted into the final SE because ...

6.      FANP Comment: Section 4.0, Parameter/assumption 4 – The calculations assume that all of the fuel assemblies are in the core to determine the core reactivity. This is part of the methodology and does not require a condition to invoke it.

        NRC Action: The comment was not adopted into the final SE because ...

7.      FANP Comment: Section 4.0, Parameter/assumption 5 - This is a requirement which is stated in the topical report itself. The minimum RCS volume is assumed for the analysis.

        NRC Action: The comment was not adopted into the final SE because ...

8.      FANP Comment: Section 4.0, Parameter/assumption 6 – The requirement in the topical report is that the minimum shutdown margin for refueling is assumed in the analyses. During refueling, this shutdown margin is preserved by a "refueling boron" concentration. The plant licensing basis defines the acceptable control rod configuration that this refueling boron must protect. Consequently, acceptable control rod configurations during refueling range from rods withdrawn to inserted depending on the plant. The method already accounts for the necessary control rod assumption (i.e., as defined by the plant licensing basis) by relying on the minimum shutdown margin.

        NRC Action: The comment was not adopted into the final SE because ...

9.      FANP Comment: Section 4.0, Parameter/assumption 7 - This is a requirement which is stated in the topical report itself. The minimum shutdown margin is assumed for the analysis in each mode of operation, including power operation.

        NRC Action: The comment was not adopted into the final SE because ...

10.     FANP Comment: Section 4.0, Parameter/assumption 8 – For each event analyzed, a conservatively high reactivity addition rate is assured by maximizing the flow rate. The functional relationship between differential boron worth and boron concentration is incorporated into the analysis by determining the initial and critical boron concentrations using a neutronics simulator, which inherently accounts for changes in differential boron worth. This is part of the methodology and does not require a condition to invoke it.

        NRC Action: The comment was not adopted into the final SE because ...

11.     FANP Comment: Section 4.0, Parameter/assumption 9 - This condition is only applicable if the code S-RELAP5 is used.

        NRC Action: The comment was not adopted into the final SE because ...

12.     FANP Comment: FANP considered that sufficient information was provided in the submittal to justify the use of the complete mixing model under asymmetric conditions, and requests that the NRC specifically approve the use of the complete mixing model for this situation by replacing the conclusion paragraph of Section 5.0 with Insert 3.

        NRC Action: The comment was partially adopted into the SE. The conclusion paragraph of Section 5.0 now states: "The NRC staff concludes that the FANP methodology

described in this TR is capable of addressing the thermal-hydraulic response of the boron dilution event in a conservative manner and is, therefore, approved for reference in licensing actions." The comment was not fully adopted into the final SE **because ...**

13.    <u>FANP Comment</u>: FANP proposes (for the purpose of clarity) to modify the first sentence in the topical report EMF-2310(P) Revision 1, section 5.6 to read, "The analysis of the boron dilution event does not use the system code S-RELAP5." This modification will be made in the approved version of the topical report.

      <u>NRC Action:</u> This modification is acceptable to the NRC.