

**RESOLUTION OF COMMENTS ON DRAFT SAFETY EVALUATION FOR**

**TOPICAL REPORT WCAP-17203-P/WCAP-17203-NP, REVISION 0-2,**

**“FAST TRANSIENT AND ATWS METHODOLOGY”**

**WESTINGHOUSE ELECTRIC COMPANY**

By letter dated June 15, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18171A072), Westinghouse Electric Company (Westinghouse) provided comments on the draft safety evaluation (SE) for Topical Report (TR) WCAP-17203-P/WCAP-17203-NP, Revision 0-2, “Fast Transient and ATWS Methodology.” Westinghouse stated that there is proprietary information in the draft SE. The following is the U.S. Nuclear Regulatory Commission (NRC) staff’s resolution of these comments:

**Draft SE comments for TR WCAP-17203-P/WCAP-17203-NP, Revision 0-2:**

1. Westinghouse provided the following comment on the last sentence of the third paragraph of Section 1.2, “Background”:

Suggest that this sentence be reworded: “Therefore, the specific categorization of IE and postulated accidents is not included in this methodology.”

**NRC Resolution for Comment 1 on Draft SE**

The NRC staff has reviewed the Westinghouse comment and agrees that proposed wording provides additional clarification. The NRC staff has updated the last sentence the third paragraph of Section 1.2, “Background.”

Last sentence the third paragraph of Section 1.2, “Background,” reads now: “Therefore, the specific categorization of IE and postulated accidents is not included in this methodology.”

2. Westinghouse indicated that the word “increase” at the end of the fifth sentence of the third paragraph, in the first sentence of the fourth paragraph of Section 3.4.1, “Pressure Increase (PI),” and in the first sentence of Section 3.4.3, “Reactor Coolant Flow Increase/Decrease (RCFI/D),” “Reactor Coolant Flow Increase (RCFI),” should be replaced with word “decrease.”

**NRC Resolution for Comment 2 on Draft SE**

The NRC staff has reviewed the Westinghouse comment and agrees with the comment. The NRC staff has updated fifth sentence of the third paragraph, first sentence of the fourth paragraph of Section 3.4.1, “Pressure Increase (PI),” and the first sentence of Section 3.4.3, “Reactor Coolant Flow Increase/Decrease (RCFI/D),” “Reactor Coolant Flow Increase (RCFI).”

Fifth sentence of the third paragraph of Section 3.4.1, "Pressure Increase (PI)," reads now:

This increase in RPV pressure will result in an increase in the core inlet subcooling and cause the boiling boundary in the core to move upwards, resulting in a core average void decrease.

First sentence of the fourth paragraph of Section 3.4.1, "Pressure Increase (PI)," reads now: "The core average void decrease will be interrupted by one of the following phenomena:"

First sentence of the first paragraph of Section 3.4.3, "Reactor Coolant Flow Increase/Decrease (RCFI/D)," "Reactor Coolant Flow Increase (RCFI)," is updated to read:

As Table 4-3 of TR indicates, the RCFI transient results from startup of an inactive recirculation pump or an operator/controller error, causes the amount of water flowing into the reactor core to increase, resulting in a gradual power increase due to a decrease in core void.

3. Westinghouse provided the following comment on the second sentence of the fourth paragraph of Section 3.4.1, "Pressure Increase (PI)": "Remove 'no.' The sentence should read: 'In the absence of actions in the plant system...'"

#### NRC Resolution for Comment 3 on Draft SE

The NRC staff reviewed the Westinghouse comment and agrees that it provides additional clarification. The NRC staff updated second sentence of the fourth paragraph of Section 3.4.1, "Pressure Increase (PI)" to clarify the NRC staff's position:

- (1) In the absence of actions in the plant system, the resulting increase in heat flux generates more boiling and the resultant increase in voids reduces the fission power and causes a fuel surface heat flux decrease causing an increase in CPR.

4. Westinghouse requested a clarification call on July 2, 2018, to discuss last sentence of the second paragraph of Section 3.7, "Uncertainty analysis," in the draft SE that references RAI19 response (Reference 19) submitted by Nuclear Innovation North America LLC to NRC via letter dated June 13, 2011, South Texas Project Units 3 and 4, "Response to Supplemental Request for Additional Information, (RAI-9 S01, RAI-17 S01, RAI-19 S01, RAI-20 S01, RAI-23 S01 through RAI-29 S01), (ADAMS Accession No. ML11166A048). Westinghouse stated that they would like to revise RAI19 response in order to clarify applicability of the TR. Westinghouse submitted revised RAI19 response (that supersedes June 13, 2011, RAI19 response in Reference 19) via letter from Edmond Mercier (Westinghouse) to NRC, "RAI-19 Revision 1 for WCAP-17203-P/WCAP-17203-NP, Revision 0-2, 'Fast Transient and ATWS Methodology' (Non-Proprietary)," LTR-NRC-18-48 dated July 10 2018 (ADAMS Accession No. ML18197A357). Based on this submittal (Reference 36) Westinghouse commented that the last sentence of the second paragraph in the Section 3.7, "Uncertainty analysis," should be deleted.

NRC Resolution for Comment 4 on Draft SE

The NRC staff reviewed the Westinghouse submittal LTR-NRC-18-48 dated July 10, 2018, and agrees that the revised response to the RAI19 provides additional clarification on the applicability of the WCAP-17203-P/WCAP-17203-NP, Revision 0-2. The NRC staff removed last sentence in the second paragraph of Section 3.7, "Uncertainty analysis."

5. Last sentence in Section titled Reactor Coolant Flow Decrease (RCFD) of Section 3.4.3, "Reactor Coolant Flow Increase/Decrease (RCFI/D)," reads:

The effect of this transient on the core is a miss-match between the heat generated in fuel and transferred from the fuel, casing fuel safety limits violated.

Westinghouse provided the following comment: "Suggest this sentence be reworded: '....from the fuel, potentially causing fuel safety limits to be exceeded.'"

NRC Resolution for Comment 5 on Draft SE:

The NRC staff reviewed the Westinghouse comment and agrees that it provides additional clarification. The NRC staff updated the last sentence in Section titled Reactor Coolant Flow Decrease (RCFD) of Section 3.4.3, "Reactor Coolant Flow Increase/Decrease (RCFI/D)," to read as follows:

The effect of this transient on the core is a miss-match between the heat generated in fuel and transferred from the fuel, potentially causing fuel safety limits to be exceeded.

6. Westinghouse provided proprietary markings on the draft SE.

NRC Resolution for Comment 6 on Draft SE:

The NRC staff reviewed the Westinghouse markings and incorporated them into the final SE.

7. Westinghouse provided editorial comments.

NRC Resolution for Comment 7 on Draft SE:

The NRC staff reviewed the Westinghouse comments and finds them acceptable because the changes are editorial in nature.