

**RESOLUTION OF COMMENTS BY THE OFFICE OF NUCLEAR REACTOR REGULATION**

**ON DRAFT SAFETY EVALUATION FOR TOPICAL REPORT**

**NEDO-32465, SUPPLEMENT 1, "MIGRATION TO TRACG04/PANAC11**

**FROM TRACG02/PANAC10 FOR REACTOR STABILITY DETECT AND SUPPRESS**

**SOLUTIONS LICENSING BASIS METHODOLOGY FOR RELOAD APPLICATIONS**

**(TAC NO. ME7104)**

**Note:** Page numbers shown in this table reflect the page numbers in General Electric – Hitachi (GEH) transmittal letter MFN 14-038, June 26, 2014. Due to suggested changes in the Safety Evaluation (SE) and the addition of a change summary table, these page numbers differ from the page numbers in the draft SE sent to GEH for review.

<b>Location</b>	<b>Comment</b>	<b>NRC Disposition</b>
Section 1.0 Introduction	Page 6: Last Paragraph: Please replace "DSS-CD" with "DIVOM calculations". Suggested changes shown in the markup.	Comment accepted. Change made in final SE.
Section 2.2 DIVOM Methodology	Page 8: 1 <sup>st</sup> paragraph: GEH suggests the following changes: "This potential for a non conservative DIVOM curve made Solutions <u>I-D, II, and III</u> invalid as a viable..." Suggested changes shown in the markup.	Comment accepted. Change made in final SE.
Section 2.2 DIVOM Methodology	Page 8: 3 <sup>rd</sup> paragraph: GEH suggests the following changes: "To calculate the cycle-specific DIVOM curve, a licensed three-dimensional (3-D) core simulator (e.g., TRACG04/PANAC11) is used to simulate core-wide and regional oscillations at <u>the limiting power/flow state point-several state points throughout that cycle- a minimum of three cycle exposures.</u> "  <i>This clarifies the way in which DIVOM is calculated.</i> Suggested changes shown in the markup.	Comment accepted. Change made in final SE.

Location	Comment	NRC Disposition
<p>Section 2.2 DIVOM Methodology</p>	<p>Page 8: 4<sup>th</sup> paragraph: GEH suggests replacing the last three sentences with the following text: <u>“The original BWROG methodology described in NEDO-32465-A (Reference 2) uses a single DIVOM slope over the expected range of oscillation magnitudes (the Hot Channel Oscillation Magnitude (HCOM) range). However, the BWROG DIVOM methodology allows for a more generic DIVOM curve, where the slope varies with oscillation amplitude. The GEH DIVOM methodology is consistent with the BWROG DIVOM methodology. The GEH DIVOM methodology application procedure is described in detail in NEDO-32465-A (Reference 2). It uses a single DIVOM slope over the expected range of oscillation magnitudes (the Hot Channel Oscillation Magnitude (HCOM) range).”</u></p> <p><i>NEDO-32465-A is a BWROG document. The text was reorganized in order to reflect that NEDO-32465-A is the original basis and the plant-specific DIVOM guidelines updated the method in order to calculate DIVOM on a cycle-specific basis and to make it clear that the GEH methodology is consistent with the BWROG methodology.</i></p> <p>Suggested changes shown in the markup.</p>	<p>Comment accepted. Change made in final SE.</p>
<p>Section 2.3 TRACG04 Use For Divom Calculations</p>	<p>Page 11: GEH suggests the following change to the section title: “TRACG04 Use For <del>Divom</del> <u>DIVOM</u> Calculations”</p> <p>Suggested changes shown in the markup.</p>	<p>Comment accepted. Change made in final SE.</p>
<p>Section 2.4 TRACG04 Modifications from TRACG02</p>	<p>Page 12: GEH suggests replacing Reference 11 in this section with Reference 9 and deleting Reference 11. “Appendix A of NEDO-32465, Supplement 1 (Reference 1) documents the 15 main changes made to TRACG02 in the upgrade to TRACG04. Most of these changes affect loss-of-coolant accident calculations (Reference 9).”</p> <p><i>Reference 11 does not discuss TRACG04.</i></p> <p>Suggested changes shown in the markup.</p>	<p>Comment accepted. Change made in final SE.</p>

Location	Comment	NRC Disposition
Section 4.0 Technical Evaluation	<p>Page 16: Paragraph directly below Figure 8: Change 'Section 7' to 'Sections <u>3 and 7</u>'.</p> <p><i>This clarification reflects that FRIGG stability tests are discussed in Section 3 of Reference 7.</i></p> <p>Suggested changes shown in the markup.</p>	Comment accepted. Change made in final SE.
Section 6.0 Conclusion	<p>Page 19: Item 3: GEH suggests the following change: "Therefore, the use of TRACG04 for DIVOM stability calculations is acceptable for <del>BWR/3-6 plants</del> <u>BWRs employing any approved D&amp;S stability solution like Solutions I-D, II or III the long term stability solutions Option I-D, Option II, or Option III.</u>"</p> <p><i>This change is recommended because DIVOM is part of three long-term stability solutions. The applicability of a long-term stability solution to a particular BWR type is dependent on the assessment of that BWR and the long-term stability solution selected. Application of DIVOM with TRACG04/PANAC11 does not impact the assessment of a long-term stability solution to a particular BWR type.</i></p> <p>Suggested changes shown in the markup.</p>	Comment accepted. Change made in final SE.
Section 7.0 References	<p>Page 20: GEH suggests deleting Reference 11 and replacing it with '<u>Not Used</u>' since it is not used in the SE and a later version of the same LTR is used elsewhere in the SE.</p> <p>Suggested changes shown in the markup.</p>	Comment accepted. Change made in final SE.