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U.S. Nuclear Regulatory Commission
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Subject: Clarification of Limitation and Condition 23 for NEDC-33173P, “Applicability of GE Methods to Expanded Operating Domains”

By Reference 1, the Nuclear Regulatory Commission (NRC) issued the final Safety Evaluation (SE) for GE Hitachi Nuclear Energy (GEH) Licensing Topical Report (LTR) NEDC-33173P, “Applicability of GE Methods to Expanded Operating Domains.” Subsequent SEs covering supplements and revisions to NEDC-33173 did not affect Limitation and Condition (L&C) 23.

Based on NRC discussions with GEH and Entergy on August 19, 2015, Entergy requested that GEH provide a letter to the NRC clarifying L&C 23 for NEDC-33173P.

L&C 23 is reproduced below.

23. MELLLA+ Eigenvalue Tracking (Section 8.3)

In the first plant-specific implementation of MELLLA+, the cycle-specific eigenvalue tracking data will be evaluated and submitted to NRC to establish the performance of nuclear methods under the operation in the new operating domain. The following data will be analyzed:

- Hot critical eigenvalue,
- Cold critical eigenvalue,
- Nodal power distribution (measured and calculated TIP comparison),
- bundle power distribution (measured and calculated TIP comparison),
- Thermal margin,
- Core flow and pressure drop uncertainties, and
- The MIP Criterion (e.g., determine if core and fuel design selected is expected to produce a plant response outside the prior experience base).

Provision of evaluation of the core-tracking data will provide the NRC staff with bases to establish if operation at the expanded operating domain indicates: (1) changes in the performance of nuclear methods outside the EPU experience base; (2) changes in the available thermal margins; (3) need for changes in the uncertainties and NRC-approved criterion used in the SLM CPR methodology; or (4) any anomaly that may require corrective actions.

L&C 23 is viewed as a GEH requirement to gather and evaluate data on GEH/GNF nuclear methods and to report the information to the NRC; it is not viewed by GEH as a plant-specific requirement. As noted in the closing paragraph of L&C 23, the L&C was included in the SE to

provide further assurance that GEH/GNF methods were performing adequately in the MELLLA+ power-flow domain. If GEH discovers a significant anomaly, immediate action would be taken to enter the condition into the GEH Corrective Action Program and process it as a potential reportable condition under 10 CFR Part 21.

GEH views the L&C 23 reporting requirement as applying to the first plant implementing MELLLA+. When this L&C was created, GEH did not know which plant would be the first to implement MELLLA+. As it turned out, a relatively low power density plant will be the first to implement MELLLA+. It is the opinion of GEH that using this low power density plant to fulfill the L&C 23 reporting requirement would not provide the most meaningful information. As such, it is the assessment of GEH that it would be better to use data from a higher power density plant and perhaps more than one plant. Also, it may be difficult to get sufficient data from one plant for one cycle. GEH is committed to meeting the data gathering and reporting requirement of L&C 23, but would request flexibility in the plant or plants used for the data. The next few plants making the MELLLA+ transition will better represent the fleet.

The timing of creating this report and submitting it to the NRC is not stated in the L&C, but may be expected to be some time after the end of the plant's first full operating MELLLA+ cycle which contains substantial TIP information generated at statepoints within the MELLLA+ domain. If the data comes from the second and/or third plant to implement, then the final report might not be submitted for 3 to 6 years. In the interim, GEH shall present, at the annual NRC Technology Update, the status of fulfillment of the L&C 23 requirement until the final report is submitted.

By way of clarification, GEH would like to provide input on the following bullet from L&C 23.

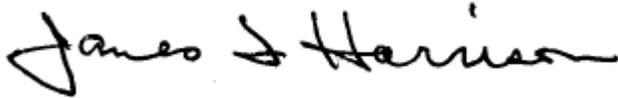
- The MIP Criterion (e.g., determine if core and fuel design selected is expected to produce a plant response outside the prior experience base).

The MCPR Importance Parameter (MIP) is an estimating parameter that indicates the effect that the flatness of the bundle power distribution has on the Safety Limit Minimum Critical Power Ratio (SLMCPR). Sufficient calculations using the approved Monte Carlo methodology have been performed for reduced flows to indicate that the resulting flattening of the power distribution is producing the expected effect on the calculated SLMCPR values. The plant data from operation in the MELLLA+ domain does not provide any information concerning the accuracy or usefulness of the MIP correlation in estimating the SLMCPR values calculated by the Monte Carlo methodology. In fact such estimations with MIP are not needed because the Monte Carlo calculations are being performed. Examining the MIP for the current 10x10 fueled MELLLA+ cores provides no additional value with respect to nuclear methods. Therefore, with NRC agreement, GEH proposes to eliminate this parameter from the reporting requirement.

GEH requests that the NRC provide a response indicating concurrence with the interpretation and proposal regarding the MIP criterion bullet included herein.

If you have any questions, please contact me.

Sincerely,

A handwritten signature in black ink that reads "James F. Harrison". The signature is written in a cursive style with a large initial "J" and "H".

James F. Harrison
Vice President, Fuel Licensing
Regulatory Affairs
GE-Hitachi Nuclear Energy Americas LLC

Project No. 710

References:

1. T.B. Blount (US NRC) to J.G. Head (GEH), Subject: Final Safety Evaluation for GE Hitachi Nuclear Energy Americas, LLC Licensing Topical Report NEDC-33173P, "Applicability of GE Methods to Expanded Operating Domains" (TAC No. MD0277), MFN 09-808, dated July 21, 2009.

cc: J Golla, US NRC
R. Scarbrough, Entergy
JG Head, GEH/Wilmington
PL Campbell, GEH/Washington
PT Tran, GEH/Vallecitos
PLM Specification 003N0054 R0