



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

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**Subject: PRIME Implementation in Detailed Transient Fuel Rod
Thermal Mechanical (T-M) Analysis**

Per our conversations during the July 17-19 NRC audit of the implementation of PRIME in downstream methodologies, it was noted that there was one downstream analysis that was not explicitly mentioned in the NEDO-33173 Supplement 4-A, Implementation of PRIME Models and Data in Downstream Methods, September 2011.

In the transient analysis workflow, conservative thermal and mechanical overpower screening limits are used to ensure conformance to fuel pellet temperature and cladding strain licensing criteria. If a screening limit is exceeded, a detailed transient T-M analysis is performed. It is the detailed transient T-M analysis that was not included in the approved Supplement 4 scope.

This letter confirms that PRIME fuel properties will be used in any detailed transient T-M analysis which is necessary. We have demonstrated that the results using PRIME fuel properties in detailed transient T-M analyses are conservative as compared to results using GSTRM fuel properties and behave as expected. As noted in Reference 1, GNF plans to submit a PRIME transient methodology topical report in the second quarter of 2013. As such, the use of PRIME properties in existing processes is an interim solution pending completion of the PRIME transient methodology review. When the PRIME transient methodology topical report is approved, it will be used in all future detailed transient T-M evaluations.

If you have any questions, please contact Jim Harrison at 910-819-6604 or me.

Sincerely,

Andrew A. Lingenfelter
Vice President, Fuel Engineering
Global Nuclear Fuel – Americas, LLC

Project No. 712

References

1. Letter from J.F. Harrison (GEH) to Document Control Desk (US NRC), Subject: Response to US NRC Request for List of Planned Topical Report Submittals for FY2012, FY2013, and FY2014, MFN 12-004, January 23, 2012.

cc: SS Philpott, NRC
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