

**From:** Leon Whitney  
**To:** jcb@nei.org  
**Date:** 01/30/2008 2:24:41 PM  
**Subject:** Comments on TMI GL 2004-02 Supplemental Response

Mr. Butler,

I am acting for Mike Scott until his return on Wednesday, February 6th (he is in Guatemala until then).

Attached are NRR staff comments on the TMI GL 2004-02 Supplemental Response dated December 28, 2007, ADAMS Accession Number ML073620535. We hope these comments are of assistance to other PWR licensees who are still in the process of preparing their GL 2004-02 Supplemental Responses due no later than February 29, 2008.

Leon Whitney, NRR/DSS/SSIB 301-415-3081

**CC:** lew1; mls3; Ralph Architzel

JANUARY 30, 2008

1. Page 1 of the NRC's Content Guide states: "The GL supplemental response should begin with a summary-level description of the approach chosen... The summary should address significant conservatisms and margins that are used to provide high confidence that the issue has been addressed even with uncertainties remaining." Licensees should remember that the staff will need to validate a holistic safety case for each plant, based on information provided by the licensee. This section (not numbered in the Content Guide) is important in making that case. Each licensee submitting a response has presumably concluded it has completed corrective actions (possibly with stated exceptions); this "up front" part of the submittal should provide the overall argument that is the basis for that conclusion. More than just a list of conservatisms, it paints the overall picture of how the plant has confidence they are in compliance.
2. In addition to referring to the staff's Content Guide, licensees should review the staff's draft (soon to be final) review guidance for expectations of information to be provided in the areas of chemical effects, head loss testing/vortexing, and coatings. (Drafts are at ML072600372, ML072600348, and ML072600335.)
3. In responding to Content Guide item 3.p, licensees should remember that licensing bases include design basis information as defined in 10 CFR 50.2 and documented in the final safety analysis report, not just technical specifications, so the summary of changes to licensing bases should address changes made to design basis information as well.
4. In the debris characteristics area, licensees should justify debris size distributions for debris sources for which a reduced zone of influence (ZOI) has been determined by testing. The default size distributions in the staff's 2004 safety evaluation (SE) have been derived for the ZOIs approved in the SE. Usage of a default size distribution with a reduced ZOI may be non-conservative because higher average jet pressures inside reduced ZOIs can result in an increased degree of damage to the debris.
5. In response to item 3.e, 2<sup>nd</sup> bullet, in the debris transport area, licensees should list the specific refinements and deviations to the approved SE guidance that were incorporated in their transport calculations so that the staff can understand how the calculation was performed.
6. In the net positive suction head (NPSH) area, licensees using a time- or temperature-dependent NPSH evaluation should provide the time or temperature trends of NPSH.

7. Regarding head loss testing, considerations include:
- Where the staff has raised concerns regarding test protocols, licensees should in some manner respond to them, summarizing how they have been resolved or justifying how remaining discrepancies would not affect conclusions the licensee has reached in their submittal.
  - Licensees should discuss anomalies observed during testing and summarize evaluation of whether the anomalies could have affected the head loss result nonconservatively.
  - If an anomaly could indicate that channeling or bore holes were present and temperature correction was performed, the licensee should provide a summary of the evaluation of the acceptability of the correction.
  - An explanation of the acceptability of any scaling of test data to different velocities or temperatures should be presented.
  - A justification for extrapolation methods or non-extrapolation of test results out to the ECCS mission time should be presented.
  - If the head loss across the strainer including debris and clean strainer components is greater than the strainer minimum submergence, licensees should explain why flashing will not occur in the debris bed or within the strainer.
  - If a thin bed was not considered the limiting debris bed for head loss, licensees should explain how the thin bed was eliminated as a limiting concern.
9. The NRC's SE for WCAP-16406-P did not reach conclusions on aspects of that report regarding in-vessel downstream effects, considering that the subject would be addressed in detail in WCAP-16793-NP. Licensees reaching conclusions regarding adequacy of core cooling in the presence of possible debris blockage without reference to WCAP-16793 and the staff's draft conditions and limitations on use of WCAP-16793 (to be provided last week in January or first week in February, 2008) should provide additional explanation of the method used. Licensees referring to WCAP-16793 should provide summary information describing how they have concluded their plant is bounded by the topical report.
10. With respect to the summary of structural evaluations performed for potential dynamic effects due to a high-energy line breaks (HELB), licensees should ensure they provide the general methods by which the conclusion is reached. For example, a summary statement that, "An evaluation has been performed which concluded the strainer is not subject to pipe whip, jet impingement, or missile impact associated with an HELB," is insufficient by itself to properly address the issue. The existence of physical barriers, operating conditions, and/or separation distances should be mentioned to provide summary-level information on the methods or basis for this conclusion.
11. Licensees should include a summary table or similar means of communicating the available design margins for structural qualification for the various components of the sump strainer structural assembly as requested in Section 3.k of the NRC's Revised Content Guide. This gives the structural reviewer an indication of which areas may require further investigation based on little or no available margin. The

safety evaluation for NEI 04-07, Section 7.1, specifically states, "A plant would not want structural design of the strainer to be the weak link in resolving the GSI-191 issue."