Entergy

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Region III
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Palisades Nuclear Plant
Dockets 50-255 and 072-7
License No. DPR-20

Follow-up Information Regarding MSB #4 Weld Flaw Analysis

Dear Sir:

By letter dated January 23, 2008, the Nuclear Regulatory Commission (NRC) requested information to assist in their continuing review of the weld flaw analysis for loading spent fuel cask multi-assembly sealed basket (MSB) #4 at the Palisades Nuclear Plant. NRC noted that that they have already received a copy of the revised fatigue crack growth calculation. NRC requested a version of the revised fatigue crack growth calculation that highlights the changes from the original revision. The requested information is provided in the enclosure.

Summary of Commitments

This letter contains no new commitments and no revision to existing commitments.

Laurie Lahti

Laurie A. Lahti
Licensing Manager
Palisades Nuclear Plant

Enclosure

CC Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
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ENCLOSURE
DESCRIPTION AND SUMMARY OF RESULTS OF CALCULATION EA-FC-864-50-01

The original calculation, EA-FC-864-50, "MSB #4 Structural Integrity Assessment," Appendix 2, evaluated flaws in the longitudinal weld in Spent Fuel Cask Multi-Assembly Sealed Basket (MSB) No. 4. This calculation was performed conservatively, assuming a uniform welding residual stress of 54 ksi (base material yield stress) and the parameter R=0.9 for stress in the MSB longitudinal.

The parameter R for stress in the MSB longitudinal is in the range of $0.9 < R < 1.0$. Reassessment using a value of R =1.0 would yield a higher fatigue crack growth rate.

Calculation EA-FC-864-50-01, "Palisades Weld Flaw Analysis for Loaded VSC Spent Fuel Cask MSB No. 4," performed this reassessment to determine the flaw size at the end of 50-year life using the R value of 1.0. As in the original calculation, this reassessment:

- Included all normal, tests, and normal handling loads, as well as seismic loads.
- The normal condition flaw stability evaluation used loads from normal operating, test, and upset conditions.
- The emergency and faulted condition flaw stability evaluation used the maximum combined accident loads from the transportation drop event.
- Using the defined loads and flaw model, the fatigue crack growth was postulated over a 50-year period.
- Acceptability was determined by comparing results to the American Society of Mechanical Engineers (ASME) code safety factors for loading conditions.

The results of the reassessment using R=1.0, when compared to the original calculation, are virtually the same. The fatigue crack growth for the 50-year life of the MSB was shown to be insignificant, i.e., less than 0.00001" in depth and length. The normal condition flaw stability yielded a margin of 4.93 compared to the ASME code safety factor of 3.16. The faulted condition flaw stability yielded a margin factor of 2.97, compared to the ASME Code safety factor of 1.414.