Entergy

Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043
Tel 269 764 2000

Thomas P. Kirwin
Acting Site Vice President

December 20, 2010

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Updated Palisades Reactor Vessel Pressurized Thermal Shock Evaluation

Palisades Nuclear Plant
Docket 50-255
License No. DPR-20

References:
1. Palisades Nuclear Plant, Application for Renewed Operating License, dated March 22, 2005 (Accession No. ML050940429).
2. Consumers Energy letter to the NRC, "Palisades Reactor Vessel Neutron Fluence Reevaluation," dated February 21, 2000, (Accession No. ML003686516).

Dear Sir or Madam:

The Palisades Nuclear Plant (PNP) license renewal application (Reference 1) stated that the RT_{PTS} value for the PNP limiting reactor vessel (RV) welds is projected to reach the 10 CFR 50.61 pressurized thermal shock (PTS) screening criterion limit prior to the end of the license renewal period. That projection was based on a previous analysis (Reference 2) that determined the RT_{PTS} values for the PNP vessel beltline materials using RV fluence and materials information available at that time. The limiting welds, which are the beltline axial welds fabricated with weld wire heat no. W5214, were projected to reach the PTS screening criterion limit in 2014.

New information is available that will affect the date when the PTS screening criterion limit is reached and, per the requirements in 10CFR50.61, the information must be reported if it improves the accuracy of the RT_{PTS} value. The vessel fluence and RT_{PTS} values have been reevaluated to ensure that vessel embrittlement is being managed and reported as required. This letter provides the new information and specifies future actions for compliance with the NRC regulations regarding PTS. This issue is being addressed under 10 CFR 54.21(c)(1)(iii), which requires that the effects of aging be managed for the period of extended operation.

A112
NRR

Subsequent to the license renewal application, the NRC published 10 CFR 50.61a, "Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events." This new alternative for PTS management involves inspecting the RV beltline region, determining limiting RT_{MAX-X} values for each axial and circumferential weld, plate, and forging, and submitting a report to NRC to justify continued operation using the PTS screening criteria in Table 1 of 10 CFR 50.61a. The new regulation requires that an application for implementation of 10 CFR 50.61a be submitted at least three years before the limiting RT_{PTS} value calculated under 10 CFR 50.61 is projected to exceed the PTS screening criteria.

Entergy Nuclear Operations, Inc. (ENO) will inspect the RV beltline region during the 2012 refueling outage. Afterward, ENO will calculate RT_{MAX-X} values for each RV beltline material and to submit a report to NRC to justify continued operation using the alternative PTS screening criteria in Table 1 of 10 CFR 50.61a. Submittal of an application for implementation of 10 CFR 50.61a will occur no less than three years before the limiting axial welds fabricated with weld wire heat no. W5214 are projected to reach the 10 CFR 50.61 PTS screening criterion limit.

On June 22, 2010, ENO staff met with the NRC to share the preliminary results of an updated PTS evaluation for the limiting axial welds fabricated with weld wire heat no. W5214. This updated PTS evaluation credits new surveillance capsule data and concludes that the axial welds fabricated with weld wire heat no. W5214 will not reach the PTS screening criteria limit until April 2017.

During the meeting, ENO agreed to submit updated PTS evaluations for the RV beltline materials in order to document compliance with 10 CFR 50.61 requirements in the interim until the 10 CFR 50.61a RV inspection is completed, the RT_{MAX-X} values for each RV beltline materials are determined, and the ENO application to implement 10 CFR 50.61a is reviewed and approved by the NRC.

Accordingly, Attachment 1 and Attachment 2 of this letter transmit the following updated PTS evaluations for the PNP RV beltline materials:

1. Structural Integrity Associates, Inc. (SIA) Report No. 0901132.401, "Evaluation of Surveillance Data for Weld Heat No. W5214 for Application to Palisades PTS Analysis"

2. SIA Report No. 1000915.401, "Revised Pressurized Thermal Shock Evaluation for the Palisades Reactor Pressure Vessel"

These two updated PTS evaluations have been reviewed by Westinghouse Electric Company, Nuclear Services.

The updated PTS evaluations are supported by Attachment 3, WCAP-15353-NP, Revision 0, Supplement 1, entitled "Palisades Reactor Pressure Vessel Fluence Evaluation."

The updated PTS evaluations for the reactor beltline materials conclude that the 10 CFR 50.61 PTS screening criteria will not be reached until April 2017.

Attachment 4 to this letter provides background information, a description of the proposed changes, and an evaluation discussion.

The attachments contain no proprietary information.

ENO requests that the NRC complete review and approval of the revised PTS evaluations and endorse the new date at which the RV is estimated to reach the PTS screening criteria.

ENO plans to use the chemistry factors in the PTS evaluations for generation of revised primary coolant system pressure-temperature curves under 10 CFR 50 Appendix G, and plans to submit revised pressure-temperature curves to the NRC in early 2011.

Summary of Commitments

This letter identifies two (2) new commitments and no revisions to existing commitments. Refer to Attachment 5.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 20, 2010.

Sincerely,

for T. Kirwin

tpk/jse

Attachments:
1. Structural Integrity Associates, Inc. Report No. 0901132.401, Evaluation of Surveillance Data for Weld Heat No. W5214 for Application to Palisades PTS Analysis
2. Structural Integrity Associates, Inc. Report No. 1000915.401, Revised Pressurized Thermal Shock Evaluation for the Palisades Reactor Pressure Vessel
3. WCAP-15353-NP, Revision 0, Supplement 1, Palisades Reactor Pressure Vessel Fluence Evaluation
4. Background Information, Description of Proposed Changes, and Evaluation Discussion
5. Description of Commitments

cc: Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
Resident Inspector, Palisades, USNRC