

From: Vaidya, Bhalchandra
Sent: Monday, August 12, 2013 2:50 PM
To: 'Darling, Theresa H'; Kristensen, Kenneth J
(Kenneth.Kristensen@cengllc.com)
Cc: McLellan, Thomas; Rosenberg, Stacey; Poehler, Jeffrey; Beall, Robert
Subject: DRAFT FOLLOW-UP RAIs (REDACTED), MF0345, LAR Re: Revising and Relocating PT Limit Curves to PRLR

SUBJECT: DRAFT FOLLOW-UP RAIs (REDACTED), Nine Mile Point Nuclear Station, Unit No. 2, Docket No. 50-410, License Amendment Request Pursuant to 10 CFR 50.90: Relocation of Pressure and Temperature Limit Curves to the Pressure and Temperature Limits Report (TAC NO.MF0345)

By letter dated November 21, 2012, as supplemented by letter dated March 25, 2013, Nine Mile Point Nuclear Station, LLC (NMPNS, the Licensee), submitted a license amendment request (LAR) for Nine Mile Point Unit 2. The proposed amendment would modify Technical Specification (TS) Section 3.4.11, "RCS Pressure and Temperature (P/T) Limits," by replacing the existing reactor vessel heatup and cooldown rate limits and the pressure and temperature (P-T) limit curves with references to the Pressure and Temperature Limits Report (PTLR). In addition, a new definition for the PTLR would be added to TS Section 1.1, "Definitions," and a new section addressing administrative requirements for the PTLR would be added to TS Section 5.0, "Administrative Controls." **By letter dated July 31, 2013, the licensee provided the responses, to the RAIs transmitted by NRC on June 20, 2013 (ADAMS Accession Package No. ML13214A396). The Licensee's Responses contained Proprietary information.**

The Nuclear Regulatory Commission (NRC) staff has reviewed the information provided in the licensee's letter dated July 31, 2013, and has determined that additional information is needed to complete its review. **The NRC staff's request (REDACTED) for additional information (RAI) is provided below.**

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REQUEST FOR ADDITIONAL INFORMATION
RELOCATION OF PRESSURE AND TEMPERATURE LIMIT CURVES
TO THE PRESSURE AND TEMPERATURE LIMITS REPORT PURSUANT TO
TITLE 10 OF THE CODE OF FEDERAL REGULATIONS (10 CFR) 50.90
NINE MILE POINT NUCLEAR STATION, LLC
NINE MILE POINT NUCLEAR STATION, UNIT 2
DOCKET NUMBER: 50-410
(TAC NUMBER MF0345)

BACKGROUND

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix G, "Fracture Toughness Requirements," states, "*this appendix specifies fracture toughness requirements for ferritic materials of pressure-retaining components of the reactor coolant pressure boundary (RCPB) of light water nuclear power reactors to provide adequate margins of safety...*" In addition, 10 CFR Part 50, Appendix G, Paragraph IV.A states that, "*the pressure-retaining components of the RCPB that are made of ferritic materials must meet the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), supplemented by the additional requirements set forth in [paragraph IV.A.2, "Pressure-Temperature (P-T) Limits and Minimum Temperature Requirements"]...*" Therefore, 10 CFR Part 50, Appendix G requires that P-T limits be developed for the entire RCPB, consisting of ferritic RCPB materials in the reactor pressure vessel (RPV) beltline (neutron fluence $\geq 1 \times 10^{17}$ n/cm², E > 1 MeV), as well as ferritic RCPB materials not in the RPV beltline (neutron fluence < 1×10^{17} n/cm², E > 1 MeV).

RAI EVIB 3

The response to RAI EVIB-1 states that Tables 4-4 and 4-5 of Reference 1 provide a list of all non-beltline vessel reactor coolant pressure boundary (RCPB) components included in the pressure-temperature (P-T) limit evaluation. It appears that all the listed components are non-beltline components in the RPV.

Requested information:

Are there any ferritic components in the RCPB that are not part of the RPV that must be considered in the development of the P-T limits, such as piping components or other pressure vessels? If so, describe how these components were considered in the development of the P-T limits, for example through consideration of the lowest service temperature (LST) as defined in the American Society of Mechanical Engineers Boiler & Pressure Vessel Code (ASME Code), Section III.

RAI EVIB 4

The response to RAI EVIB-1 indicates that all RCPB materials met the applicable ASME Code requirements for fracture toughness, but also states that the Pressure Integrity Specification for the RCPB materials has the following requirement:

“For ferritic RCPB materials ordered where the service temperature is less than 250°F when the system is pressurized to more than 20% of the design pressure, impact tests in accordance with the ASME Code were required to demonstrate adequate fracture toughness properties. For RCPB materials having a minimum service temperature of 250°F or more when the system is pressurized to more than 20% of the design pressure, impact testing was not required. Further, impact testing was not required on components or equipment whose rupture could not result in a loss of coolant exceeding the capability of the normal makeup system to maintain adequate core cooling for the duration of reactor shutdown and orderly cooldown.”

The above requirement of the Pressure Integrity Specification appears inconsistent with the requirements of the ASME Code, Section III, NB-2300, “Fracture Toughness Requirements for Material.”

Requested Information

Discuss how the impact testing requirements of the Pressure Integrity Specification are consistent with ASME Code, Section III, NB-2300 requirements for fracture toughness of material.

RAI EVIB 5

The response to RAI EVIB-2, Item 1, Water Level Instrumentation (WLI) Nozzle states that the General Electric-Hitachi (GEH) methodology is that any partial penetration nozzle that is located in the beltline region is evaluated using the

[[]] methodology as defined in Appendix F of Reference 1. The calculation provided for the pressure-temperature relationship of the WLI nozzle appears to follow the methodology of Appendix F. However, the calculation uses the [[]] from Appendix J of Reference 1.

Requested Information

1. Clarify whether the NMP2 WLI nozzle is a partial penetration or full penetration nozzle and whether the methodology of Appendix F or Appendix J was used to calculate the P-T limits required for the WLI nozzle.
2. If the NMP2 WLI nozzle is a full-penetration nozzle, justify the use of the [[]] values from Appendix J for evaluating the P-T limits for this nozzle, since the Appendix J methodology is for a partial penetration welded nozzle.
3. Provide the inputs and the calculation of [[]].

]].

References

NEDC-33178P-A, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves," Enclosure 1 to MFN 09-506, June 30, 2009 (ADAMS Accession No. ML092370488)

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The NRC staff would like to receive the responses to the RAIs by COB August 30, 2013. Please contact me, ASAP, to schedule a tele-conference between the licensee and the NRC staff to ensure that the licensee clearly understands the RAIs and also, to ensure that the licensee would be able to provide the Responses to these RAIs by August 30, 2013.

Please contact me, if you have any questions.

Thanks,

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