

Burkhardt, Janet

From: Singal, Balwant
Sent: Friday, November 13, 2015 8:36 AM
To: 'Hope, Timothy' (Timothy.Hope@luminant.com)
Cc: 'Jack.Hicks@luminant.com' (Jack.Hicks@luminant.com); Burkhardt, Janet
Subject: Request for Additional Information (RAI) - Relief Request B-3 (CAC No. MF6554)
Attachments: RAI-MF6554-RR3.docx

Tim,

By letter dated August 3, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15224B361), Luminant Generation Company LLC requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). Relief Request B-3 pertains to the examination coverage of the reactor coolant system pipe to pipe flange weld at the Comanche Peak Nuclear Power Plant, Unit 2.

The NRC staff requests for the attached additional information to complete the review of this RR.

Draft RAI were transmitted on November 6, 2015. Jack Hicks of your organization informed the NRC staff on November 12, 2015 that a clarification call is not needed.

Please treat this e-mail as formal transmittal of RAIs. You are requested to respond to this RAI request within 30 days from the date of this e-mail.

Thanks.

REQUEST FOR ADDITIONAL INFORMATION

RELIEF REQUEST B-3

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT 2

DOCKET NUMBER 50-446

By letter dated August 3, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15224B361), Luminant Generation Company LLC (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). Relief Request B-3 pertains to the examination coverage of the reactor coolant system pipe to pipe flange weld at the Comanche Peak Nuclear Power Plant, Unit 2.

To complete its review, the U.S. Nuclear Regulatory Commission (NRC) staff requests the following additional information.

1. In Section 2 of relief request B-3, the licensee stated that,

The applicable ASME Boiler and Pressure Vessel Code (hereafter referred to as the "Code") edition and addenda is ASME Section XI, "Rule for Inservice Inspection of Nuclear Power Plant Components," 1998 Edition, through 2000 Addenda. In addition, as required by 10 CFR [Title 10 of the *Code of Federal Regulations*] 50.55a, ASME Section XI, 1995 Edition, 1996 Addenda is used for Appendix VIII, Performance Demonstration for Ultrasonic Examination System.

The NRC staff notes that pursuant to 10 CFR 50.55a(b)(2)(xv), "Section XI condition: Appendix VIII specimen set and qualification requirements," licensees using Appendix VIII in the 1995 Edition through the 2001 Edition of the ASME Code may elect to comply with all of the provisions in paragraphs (b)(2)(xv)(A) through (M) of 50.55a, except for paragraph (b)(2)(xv)(F) of 50.55a, which may be used at the licensee's option. Licensees using editions and addenda after 2001 Edition through the 2006 Addenda must use the 2001 Edition of Appendix VIII and may elect to comply with all of the provisions in paragraphs (b)(2)(xv)(A) through (M) of 50.55a, except for paragraph (b)(2)(xv)(F) of 50.55a, which may be used at the licensee's option.

- a. Please clarify if 1998 Edition through 2000 Addenda to the ASME Code, Section XI, Appendix VIII, was used for ultrasonic testing (UT) personnel qualification and procedures demonstration.
- b. Please provide justification if other editions and addenda were used.

Enclosure

2. Please provide the following information:
 - a. Material specifications (e.g., austenitic stainless steel pipes SA-376, TP-304 and austenitic stainless steel ER-308 weldment) for the weld and associated components (e.g., pipe and flange).
 - b. Thickness of the pipe.
3. Please describe the following:
 - a. The inservice inspection (ISI) history (i.e., inspection years, disposition of detected flaws, extent of condition assessment, and corrective actions).
 - b. Whether the licensee identified any indications during construction and preservice inspections (i.e., radiographic testing or surface examination, or both) on the volume not covered by UT.
 - c. Disposition of identified flaws.
4. The NRC staff notes that the refracted longitudinal (L) waves have shown to have better penetration capability in the cast austenitic stainless steel and austenitic stainless steel materials and they could be used as an extra effort to scan the far-side of examination volume. Given the reduced inspection coverage of the weld under consideration:
 - a. Please discuss whether the licensee performed the "Best Effort" examination using L-waves as an extra effort to interrogate the required downstream examination volume (far-side), particularly the root of the weld and the heat affected zone (HAZ) base materials typically susceptible to high stresses and potential degradation;
 - b. Please provide percentage of coverage obtained from the "Best Effort" examination if this examination was performed.
5. Given the reduced inspection coverage of the welds under consideration, please discuss the following:
 - a. Any walkdowns (e.g., under Boric Acid Corrosion Control Program or normal operator rounds) usually performed to monitor and identify leakage in an unlikely event of a through wall leak.
 - b. Reactor coolant system leakage detection capabilities at the plant, or any measures taken, to monitor and identify leakage during operation in an unlikely event of a through wall leak in the weld.
6. In an unlikely event of a potential through wall flaw and leakage, please discuss significance of the leak and potential for structural failure of the subject welds.
7. Please discuss any industry or plant-specific operating experience regarding potential degradation (e.g., stress corrosion cracking, corrosion, and fatigue) and potential severe loading (e.g., vibration, water hammer, and overloading) for the subject weld and associated components.

The NRC staff notes that due to recent operating experience regarding thermal fatigue cracking in some plants, the Electric Power Research Institute (EPRI) issued an interim

guidance, "EPRI-MRP [Material Reliability Program] Interim Guidance for Management of Thermal Fatigue," (ADAMS Accession Number ML15189A100), that supplemented the existing industry thermal fatigue guidelines (e.g., MRP-146¹ and MRP-192²) to better manage thermal fatigue cracking. Please discuss whether the licensee will take any compensatory measures to better manage thermal fatigue cracking in the subject weld to ensure structural integrity and leak tightness, since essentially 100 coverage was not achieved by the UT.

8. Please discuss whether use of alternative volumetric examination techniques (e.g., the radiographic testing and phased array UT) would increase examination coverage.

¹ Materials Reliability Program: Management of Thermal Fatigue in Normally Stagnant Non-Isolable Reactor Coolant System Branch Lines (MRP-146) (Non-Publically Available)

² Materials Reliability Program: Assessment of Residual Heat Removal Mixing Tee Thermal Fatigue in PWR [Pressurized Water Reactor] Plants (MRP-192) (Non-Publically Available)