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CP-201501102
TXX-15156

Ref. # 10CFR50.55a(z)(1)

December 14, 2015

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

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT
DOCKET NO. 50-446
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR
RELIEF REQUEST B-10 FOR UNIT 2 SECOND TEN YEAR INSERVICE INSPECTION
INTERVAL FROM 10CFR50.55a INSPECTION REQUIREMENTS DUE TO PHYSICAL
INTERFERENCES (1998 EDITION OF ASME CODE, SECTION XI, 2000ADDENDA
THIRD INTERVAL START DATE: AUGUST 3, 2004 THIRD INTERVAL END DATE:
AUGUST 2, 2014) CAC NO. MF6554

- REFERENCES:** 1. Letter logged TXX-15117 dated August 3, 2015 from Rafael Flores to the NRC submitting Relief Request B-10 for Unit 2 Second Ten Year Inservice Inspection Interval from 10CFR50.55a Inspection Requirements due to Physical Interferences
2. Email dated November 13, 2015 from Balwant Singal of the NRC to Timothy Hope of Luminant Power requesting additional information regarding Relief Request B-10 (CAC No. MF6554)

Dear Sir or Madam:

Per Reference 1, Luminant Generation Company, LLC (Luminant Power) submitted Relief Request B-10 for Comanche Peak Unit 2 for the second ten year inservice inspection interval. Per Reference 2, the NRC provided a request for additional information regarding the subject relief request.

Attached is the Luminant Power response to the request for additional information.

This communication contains no new licensing basis commitments regarding Comanche Peak Unit 2.

A047
NRR

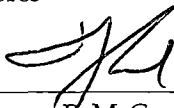
Should you have any questions, please contact Mr. Jack Hicks at (254) 897-6725.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

By: _____


Thomas F. McCool

Vice President, Engineering and Support

Attachment – Response to Request for Information Regarding Unit 2 Relief Request B-10 Second Ten
Year Interval Inspection Requirements due to Physical Interferences

c - Marc L. Dapas, Region IV
Balwant K. Singal, NRR
Resident Inspectors, Comanche Peak
Robert Free, TDLR
Jack Ballard, ANII, Comanche Peak

**COMANCHE PEAK NUCLEAR POWER PLANT UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELIEF REQUEST B-10 FOR SECOND TEN YEAR INTERVAL INSPECTION REQUIREMENTS
DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NO. MF6555**

NRC REQUEST 1:

Please clarify whether it would be possible to remove structural restraints to increase the examination coverage, and discuss any impracticality associated with removal of structural restraints and any burden that may be caused.

LUMINANT POWER RESPONSE TO REQUEST 1:

The group of structural restraints that are preventing full examination coverage of weld TCX-1-4301-10 is very complex in nature. The main structure is made up of 12" wide by 12" tall beams fabricated with 1" thick steel plate and various 1" thick steel gusset plates all anchored to the steam generator compartment walls with many 1" diameter anchor bolts. Various large bore and small bore pipe supports from various different piping segments are welded to and extend from this main structure. To modify and/or remove any part of the main structure or any of the various pipe supports would require extensive, costly and time consuming engineering design modifications. Also, elaborate scaffolding would need to be erected in order to perform the extensive field modifications all of which would be located in a high radiation dose area in the steam generator compartment. The burden caused by removing and/or modifying these structural restraints would be significant dose, time and cost.

NRC REQUEST 2:

Section 2 of the RR, states;

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 *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.

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LUMINANT POWER RESPONSE TO REQUEST 2:

- a. CPNPP Response: 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. No other editions and addenda were used.

NRC REQUEST 3:

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 welds and associated components (e.g., pipe, and elbow).
- b. Thickness of each pipe.

LUMINANT POWER RESPONSE TO REQUEST 3:

- a. Austenitic stainless steel SA-376 Type 316 pipe to austenitic stainless steel SA-403 Type 316 elbow with ER-316 weldment material.
- b. 10" Schedule 140 Stainless Steel Pipe and 10" Schedule 140 stainless steel elbow. (1.000 inches thick).

NRC REQUEST 4:

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.

LUMINANT POWER RESPONSE TO REQUEST 4:

- a. The first inservice inspection of weld TCX-1-4301-10 (Ultrasonic examination) was performed in the Fall 2009 (2RF11) which was the Second Interval, Second Period, Second Outage for CPNPP Unit 2 with no identified flaws or corrective actions required.
- b. Construction inspections (Radiographic testing and surface examination) of weld TCX-1-4301-10 were satisfactorily performed with no identified flaws. Preservice inspections (Ultrasonic examination and surface examination) were also satisfactorily performed with no identified flaws.

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- c. No flaws have been identified in weld TCX-1-4301-10, therefore, no disposition has been required.

NRC REQUEST 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 under consideration.

LUMINANT POWER RESPONSE TO REQUEST 5:

- a. There are several programs at CPNPP that examine the area in question each refueling outage. These programs are as follows:
- TCX-1-4301-10 is within the examination scope of the Boric Acid Control Program walk down prior to each Refueling Outage.
 - TCX-1-4301-10 is also included in the scope of the Class 1 System Leakage Test prior to plant startup following each refueling outage as required by ASME Section XI.
- b. CPNPP has a Leakage-detection system with design objectives in accordance with the requirements of 10 CFR Part 50, GDC 30, and NRC Regulatory Guide 1.45. The leakage-detection systems are capable of detecting leakage as low as 0.1-gpm using the air particulate monitor and as low as 1-gpm using the condensate flow rate and the sump level alarm. The sensitivity is reasonably adequate to detect an increase in unidentified leakage rate. The following are also plant indications of evidence of leakage that are procedurally monitored at CPNPP: Containment humidity high or increasing, Containment radiation levels high or increasing, Containment temperature high or increasing, Containment pressure high or increasing and Containment dew point increasing. An RCS water inventory balance is also performed daily by operations for evidence of RCS leakage.

NRC REQUEST 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 weld.

LUMINANT POWER RESPONSE TO REQUEST 6:

Based on the containment leakage detection as discussed in RAI 5 above, a potential through wall flaw of the weld should be detected and the plant would be shut down before significant weld failure could occur. Then corrective action would be performed as required.

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NRC REQUEST 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.

LUMINANT POWER RESPONSE TO REQUEST 7:

A review of industry and plant-specific operating experience databases did not identify any operating experience regarding potential degradation and potential severe loading for the subject weld. The closest operating experience that could be found was for Intergranular Stress Corrosion Cracking (IGSCC) on the inside surface of the Safety Injection Accumulator nozzles at one PWR plant. However, weld TCX-1-4301-10 is located on the main 10" diameter discharge line from the Loop 3 Safety Injection Accumulator and not near the nozzle.

NRC REQUEST 8:

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

LUMINANT POWER RESPONSE TO REQUEST 8:

No radiography testing was performed on weld TCX-1-4301-10 due to limitation of the box restraint. Phased Array inspection would not have increased inspection volume due to the interferences caused by the box restraint. Ultrasonic examination achieved 76.5% of the required weld volume. Further ultrasonic inspection of the other 23.5% of the weld volume was not possible due to the box restraint interference.

NRC REQUEST 9:

Section 4 of the RR, states;

The examinations of the subject piping welds were limited by the closeness of the piping welds to safety injection piping structural restraints, attached to the steam generator lower beam. This configuration limited portions of the weld volume from being examined.

Given the reduced inspection coverage of the weld under consideration, please clarify whether the licensee's UT inspected the weld root and heat affected zone of base materials typically susceptible to high stresses and potential degradation.

LUMINANT POWER RESPONSE TO REQUEST 9:

As seen in Attachment 2 of Relief Request B-10 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15224B363) 26 inches of the overall 34 inch weld (76.5%) was fully examined, including the weld root and heat affected zone. The remaining 8 inches (23.5%) of weld

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was obstructed from examination, including that portion of the weld root and heat affected zone. Therefore, 76.5% of the weld root and heat affected zone were inspected.

NRC REQUEST 10:

Please discuss whether this weld has been subjected to augmented inspection program in accordance with Bulletin (BL)-79-17 "Pipe Cracks in Stagnant Borated Water Systems at PWR [Pressurized Water Reactors] Plants," (Legacy Accession No. 7908220137).

LUMINANT POWER RESPONSE TO REQUEST 10:

Bulletin (BL)-79-17 "Pipe Cracks in Stagnant Borated Water Systems at PWR [Pressurized Water Reactors] Plants" Revision 1 was issued on October 29, 1979 with a completion deadline of "not later than twelve months from the date of this bulletin revision." CPNPP Unit 2 had a commercial operation date of August 3, 1993. Therefore, the completion deadline for (BL)-79-17 Revision 1 had passed well before CPNPP Unit 2 entered into commercial operation.

NRC REQUEST 11:

Section 4 of the RR, the licensee stated that it determined that Weld Number TCX-1-4301-9, that is also valve to pipe weld and have similar restraint and subject to similar degradation mechanism, is the only weld that provides essentially 100 percent coverage. Will the licensee plan to examine this weld in the next 10-year interval?

LUMINANT POWER RESPONSE TO REQUEST 11:

Weld TCX-1-4301-9 (Pipe-to-elbow weld) was examined in the Fall 2009 (2RF11) at the same time as the subject weld, TCX-1-4301-10. As stated in Section 4 of Relief Request B-10 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15224B363), 100% coverage was feasible at weld TCX-1-4301-9. Weld TCX-1-4301-9 is currently scheduled to be examined in the third ISI 10-year interval in the Spring 2020 (2RF18).