Luminant

Rafael Flores
Senior Vice President
& Chief Nuclear Officer
Rafael.Flores@Luminant.com

Luminant Power
P O Box 1002
6322 North FM 56
Glen Rose, TX 76043

T 254 897 5590
C 817 559 0403
F 254 897 6652

CP-201501100
TXX-15154

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-3 FOR UNIT 2 SECOND TEN YEAR INSERVICE INSPECTION
INTERVAL FROM 10CFR50.55a INSPECTION REQUIREMENTS DUE TO PHYSICAL
INTERFRENCES (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-15115 dated August 3, 2015 from Rafael Flores to the NRC submitting Relief Request B-3 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-3 (CAC No. MF6554)

Dear Sir or Madam:

Per Reference 1, Luminant Generation Company, LLC (Luminant Power) submitted Relief Request B-3 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 P. McCool
Vice President, Engineering and Support

Attachment – Response to Request for Information Regarding Unit 2 Relief Request B-3 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-3 FOR SECOND TEN YEAR INTERVAL INSPECTION REQUIREMENTS
DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NO. MF6554

NRC REQUEST 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.

LUMINANT POWER RESPONSE TO REQUEST 1:

a. 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 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.

COMANCHE PEAK NUCLEAR POWER PLANT UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELIEF REQUEST B-3 FOR SECOND TEN YEAR INTERVAL INSPECTION REQUIREMENTS
DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NO. MF6554

LUMINANT POWER RESPONSE TO REQUEST 2:

a. Austenitic stainless steel SA-376 Type 304 pipe to SA-182 F316 valve with ER-316 weldment material.

b. 3" Schedule 160 Stainless Steel Pipe (0.437 inches thick).

NRC REQUEST 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.

LUMINANT POWER RESPONSE TO REQUEST 3:

a. The first inservice inspection of weld TCX-1-4105-6 (Surface examination) was performed in 2RF01 which was the First Interval, First Period, First Outage in 1994 with no identified flaws or corrective actions required. The second inservice inspection of weld TCX-1-4105-6 (Ultrasonic examination and Surface examination) was performed in 2RF08 which was the Second Interval, First Period, First Outage in 2005 with no identified flaws or corrective actions required.

b. Construction inspections (Radiographic testing and surface examination) of weld TCX-1-4105-6 were satisfactorily performed with no identified flaws. Preservice inspection (surface examination) was also satisfactorily performed with no identified flaws.

c. No flaws have been identified in weld TCX-1-4105-6. Therefore, no disposition has been required.

NRC REQUEST 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 license 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;

COMANCHE PEAK NUCLEAR POWER PLANT UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELIEF REQUEST B-3 FOR SECOND TEN YEAR INTERVAL INSPECTION REQUIREMENTS
DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NO. MF6554

b. Please provide percentage of coverage obtained from the "Best Effort" examination if this examination was performed.

LUMINANT POWER RESPONSE TO REQUEST 4:

a. A "Best Effort" examination combining 45 degree and 70 degree (L-waves) was performed for weld TCX-1-4105-6.

b. The percentage of coverage obtained from the "Best Effort" examination was 75% of the required examination volume.

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.

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-1-4105-6 is within the examination scope of the Boric Acid Control Program walk down prior to each Refueling Outage.
   - The insulation at weld TCX-1-4105-6 and immediately downstream is removed during each refueling outage and UT examined per the MRP-146 Thermal Fatigue Guidelines. (Note: The subject weld, TCX-1-4105-6, is not in the MRP-146 examination volume, but the area immediately downstream and the adjacent weld are.)
   - Weld TCX-1-4105-6 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.

COMANCHE PEAK NUCLEAR POWER PLANT UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELIEF REQUEST B-3 FOR SECOND TEN YEAR INTERVAL INSPECTION REQUIREMENTS
DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NO. MF6554

NRC REQUEST 6:

In an unlikely event of a potential though wall flaw and leakage, please discuss significance of the leak and potential for structural failure of the subject welds.

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.

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.

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-146[1] and MRP-192[2]) 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.

LUMINANT POWER RESPONSE TO REQUEST 7:

The thermal fatigue operating experience for the area immediately downstream of weld TCX-1-4105-6 is widely known and documented throughout the industry. (Note: The subject weld, TCX-1-4105-6, is not in the MRP-146 examination volume, but the area immediately downstream and the adjacent weld are.) Therefore, as stated above, the insulation at weld TCX-1-4105-6 and immediately downstream is removed during each refueling outage and UT examined per the MRP-146 Thermal Fatigue Guidelines. CPNPP does not intend to take any further compensatory measures beyond that of the MRP-146 Thermal Fatigue Guidelines and the Interim Guidance for Management of Thermal Fatigue.

[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)

COMANCHE PEAK NUCLEAR POWER PLANT UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELIEF REQUEST B-3 FOR SECOND TEN YEAR INTERVAL INSPECTION REQUIREMENTS
DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NO. MF6554

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 radiographic testing/imaging of the weld area was performed due to configuration and radiological requirements in order to perform this type of examination. Phased Array inspection techniques would not produce increased examination volume due to component configuration and Phased Array probe size limitations.