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CP-201501104
TXX-15158

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 REQUESTS B-15, C-2, AND C-4 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 NOS. MF6557, MF6558, MF6559

- REFERENCES:**
1. Letter logged TXX-15119 dated August 3, 2015 from Rafael Flores to the NRC submitting Relief Request B-15 for Unit 2 Second Ten Year Inservice Inspection Interval from 10CFR50.55a Inspection Requirements due to Physical Interferences
 2. Letter logged TXX-15120 dated August 3, 2015 from Rafael Flores to the NRC submitting Relief Request C-2 for Unit 2 Second Ten Year Inservice Inspection Interval from 10CFR50.55a Inspection Requirements due to Physical Interferences
 3. Letter logged TXX-15121 dated August 3, 2015 from Rafael Flores to the NRC submitting Relief Request C-4 for Unit 2 Second Ten Year Inservice Inspection Interval from 10CFR50.55a Inspection Requirements due to Physical Interferences
 4. Email dated November 13, 2015 from Balwant Singal of the NRC to Timothy Hope of Luminant Power requesting additional information regarding Relief RequestS B-15, C-2 and C-4 (CAC Nos. MF6557, MF6558, MF6559)

Dear Sir or Madam:

Per References 1, 2 and 3, Luminant Generation Company, LLC (Luminant Power) submitted Relief Requests B-15, C-2, and C-4 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.

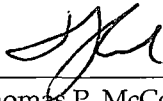
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Should you have any questions, please contact Mr. Jack Hicks at (254) 897-6725.

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 Requests B-15, C-2 and C-4
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-15, C-2, AND C-4 FOR SECOND TEN YEAR INTERVAL INSPECTION
REQUIREMENTS DUE TO PHYSICAL INTERFERENCES
(SECOND 10-YEAR ISI INTERVAL END DATE: August 2, 2014)
CAC NOS. MF6557/MF6558/MF6559**

NRC REQUEST 1:

In relief request B-15, the staff notes that weld TCX-1-1300-2 is in Examination Category B-A, Item No. B1.21 of Table IWB-2500-1, "Examination Categories," of the ASME Code, Section XI. As indicated in Table IWB-2500-1, the examination requirement for Item No. B1.21 welds is essentially 100% of the accessible weld length. The ASME Code Committees recognize the limitations of examining these welds and specifically stated in this particular ASME Code requirement to examine the "accessible length" of the welds. Please clarify whether or not that essentially 100% of the accessible weld length was achieved for weld TCX-1-1300-2.

LUMINANT POWER RESPONSE TO REQUEST 1:

As stated in RAI 1 above, TCX-1-1300-2 does not require a relief request for coverage. As allowed ASME Section XI Examination Category B-A, Item No. B1.21 of Table IWB-2500-1, only the accessible areas of the weld length are required to be examined. Essentially 100% of the accessible weld length was inspected both parallel and transverse to the weld. Due to the component configuration only single direction coverage was obtained in the transverse direction. This single direction coverage has been qualified per EPRI Generic procedure PDI-UT-6 (CPNPP procedure TX-ISI-306) and the examiner has been qualified to the single sided technique. No further discussion of weld TCX-1-1300-2 is required.

NRC REQUEST 2:

Please provide the following additional information regarding the examination diagrams of the subject RRs:

- a) Depending on the licensee's response to RAI 1 regarding RR B-15, with respect to weld TCX-1-1300-2, provide the following information: (1) the ASME Code, Section XI required examination volume (cross sectional area multiplied by weld length), (2) the scan angles used for the examination, and (3) the achieved scanned volumes (cross sectional area multiplied by weld length) for both the axial and circumferential scan directions. Please refer to the presentation slides for, "Industry/NRC NDE [Non Destructive Examination] Technical Information Exchange Public Meeting, January 13 - 15, 2015," (ADAMS Accession Number ML15013A266) for a discussion of the staff's expectations for the content of an examination/inspection diagram (see slide 12 for an example). The sketch/diagram should show relevant dimensions, such as wall thickness and weld dimensions.
- b) Regarding RR C-2, with respect to weld TCX-2-1180-1-2, provide the following information: (1) the ASME Code, Section XI required examination volume (cross sectional area multiplied by weld length), (2) the scan angles used for the examination, (3) the achieved scanned volumes for both the axial and circumferential scan directions (cross sectional area multiplied by weld length), and (4) the material of construction of weld TCX-2-1180-1-2 and the base metal immediately adjacent to the weld. Please refer to the presentation slides for, "Industry/NRC NDE Technical Information Exchange Public Meeting, January 13 -15, 2015," for a discussion of the staff's expectations for the content of an examination/inspection diagram (see slide 12 for an example). The sketch/diagram should show relevant dimensions, such as wall thickness and weld dimensions.
- c) Regarding RR C-4, with respect to the subject welds, provide the following information: (1) the

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CAC NOS. MF6557/MF6558/MF6559**

ASME Code, Section XI required examination volume (cross sectional area multiplied by weld length), (2) the scan angles used for the examination, (3) the achieved scanned volumes for both the axial and circumferential scan directions (cross sectional area multiplied by weld length), and (4) the material of construction of the subject welds and the base metal immediately adjacent to the welds. Please refer to the presentation slides for, "Industry/NRC NDE Technical Information Exchange Public Meeting, January 13 -15, 2015," for a discussion of the staff's expectations for the content of an examination/inspection diagram (see slide 12 for an example). The sketch/diagram should show relevant dimensions, such as wall thickness and weld dimensions.

LUMINANT POWER RESPONSE TO REQUEST 2:

a. As stated in the response to RAI 1 no further discussion of weld TCX-1-1300-2 is required.

b. Component ID- TCX-2-1180-1-2 CT Heat Exchanger Shell-to-Flange Weld

Code Category – C-A

Code Item Number – C1.10

IWC Examination Figure – IWC-2500-1

Code Required Volume - Full volume and ½" to each side of the weld

Scan Angle Used for Examination – 45 degree shear

Achieved Coverage Showing Calculations – 86% coverage reported.

(See Relief Request C-2 for examination data sheets and sketches)

Were RL's used to achieve additional coverage on a best effort basis – No

Material of Construction - Shell: SA-240 Type 304 Stainless Steel, Flange: SA-182F Type 304

Radiography (RT) would be impractical to perform due to the physical and access limitations present. i.e. placement of source and film.

Phased array ultrasonic examination would not gain any additional coverage due to the inherently large search unit size of the phased array search units and would likely result in less coverage than the manual technique applied.

c. Component ID- TCX-2-1120-1-1 RHR Heat Exchanger Head-to-Shell Weld

Code Category – C-A

Code Item Number – C1.20

IWC Examination Figure – IWC-2500-1

Code Required Volume – Full volume and ½" to each side of the weld

Scan Angle Used for Examination – 45 degree shear

Achieved Coverage Showing Calculations – 75% coverage was achieved due to an integrally welded support to the vessel.

36" limitation of total weld length of 142.08"

$36/142.08 = .253$ or 25% reduced examination volume

(See Relief Request C-4 for examination data sheets and sketches)

Were RL's used to achieve additional coverage on a best effort basis – No

Material of Construction – Shell/Head: SA-240 Type 304 Stainless Steel, Weld Material: ER-308 or ER-309

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Radiography (RT) would be impractical to perform due to the physical and access limitations present. i.e. placement of source and film.

Phased array ultrasonic examination would not gain any additional coverage due to the inherently large search unit size of the phased array search units and would likely result in less coverage than the manual technique applied.

Component ID- TCX-2-1120-1-2 RHR Heat Exchanger Shell-to-Flange Weld

Code Category – C-A

Code Item Number – C1.10

IWC Examination Figure – IWC-2500-1

Code Required Volume – Full volume and ½" to each side of the weld

Scan Angle Used for Examination – 45 degree shear & 60 degree shear

Achieved Coverage Showing Calculations – 63% coverage was achieved due to an integrally welded support to the vessel.

52" limitation of total weld length of 142.08"

$52/142.08 = .366$ or 37% reduced examination volume

(See Relief Request C-4 for examination data sheets and sketches)

Were RL's used to achieve additional coverage on a best effort basis – No

Material of Construction – Shell/Flange: SA-240 Type 304 Stainless Steel, Weld Material: ER-308 or ER-309

Radiography (RT) would be impractical to perform due to the physical and access limitations present. i.e. placement of source and film.

Phased array ultrasonic examination would not gain any additional coverage due to the inherently large search unit size of the phased array search units and would likely result in less coverage than the manual technique applied.

Component ID- TCX-2-1120-1-3 RHR Heat Exchanger Inlet Nozzle-to-Shell Weld

Code Category – C-B

Code Item Number – C2.21

IWC Examination Figure – IWC-2500-4

Code Required Volume – Bottom 1/3t volume and ½" to each side of the weld

Scan Angle Used for Examination – 45 degree shear, 60 degree shear, 60 degree RL

Achieved Coverage Showing Calculations – 75% coverage was achieved due to one sided vessel access.

45° Axial Scan 100%

45° Circ Scan 50%

45° Circ Scan

$37.68/2 = 18.8$

$18.84/37.68 = .500$ (50%)

Total 45° Coverage = 75%

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Supplemental Coverage
60° Shear Axial Scan 100%
60° RL Axial Scan 100%

(See Relief Request C-4 for examination data sheets and sketches)

Were RL's used to achieve additional coverage on a best effort basis – Yes, 60 degree RL used for supplemental best effort examination
Material of Construction – Shell/Nozzle: SA-240 Type 304 Stainless Steel, Weld Material: ER-308 or ER-309

Radiography (RT) would be impractical to perform due to the physical and access limitations present. i.e. placement of source and film.

Phased array ultrasonic examination would not gain any additional coverage due to the inherently large search unit size of the phased array search units and would likely result in less coverage than the manual technique applied.

Component ID- TCX-2-1120-1-4 RHR Heat Exchanger Outlet Nozzle-to-Shell Weld

Code Category – C-B

Code Item Number – C2.21

IWC Examination Figure – IWC-2500-4

Code Required Volume – Bottom 1/3t volume and 1/2" to each side of the weld

Scan Angle Used for Examination – 45 degree shear, 60 degree shear, 60 degree RL

Achieved Coverage Showing Calculations – 75% coverage was achieved due to one sided vessel access.

45° Axial Scan 100%
45° Circ Scan 50%

45° Circ Scan
 $37.68/2 = 18.8$
 $18.84/37.68 = .500$ (50%)

Total 45° Coverage = 75%

Supplemental Coverage
60° Shear Axial Scan 100%
60° RL Axial Scan 100%

(See Relief Request C-4 for examination data sheets and sketches)

Were RL's used to achieve additional coverage on a best effort basis – Yes, 60 degree RL used for supplemental best effort examination
Material of Construction – Shell/Nozzle: SA-240 Type 304 Stainless Steel, Weld Material: ER-308 or ER-309

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Radiography (RT) would be impractical to perform due to the physical and access limitations present. i.e. placement of source and film.

Phased array ultrasonic examination would not gain any additional coverage due to the inherently large search unit size of the phased array search units and would likely result in less coverage than the manual technique applied.

NRC REQUEST 3:

For the examinations performed in RRs B-15, C-2, and C-4, please discuss the adequacy of one-sided exams, if applicable. Please discuss, for example, whether 50% or 100% credit is given to the achieved one-sided examination volume. If 100% credit is given, please provide the justification.

LUMINANT POWER RESPONSE TO REQUEST 3:

As stated in the response to RAI 1 no further discussion of weld TCX-1-1300-2 is required.

For C-2 approximately 86% coverage was achieved based on limitation calculations and examination volume achieved. Limitation drawing shows limitations associated with this component. No further examination volume could be achieved utilizing phased array, due to transducer size limitations.

For C-4 approximately 75% coverage was achieved for the one-sided exams based on limitation calculations and examination volume achieved. Limitation drawing shows limitations associated with this component. No further examination volume could be achieved utilizing phased array, due to transducer size limitations.

NRC REQUEST 4:

Please provide the following information regarding the ultrasonic examination procedures used in the subject RRs:

- a) Depending on the licensee's response to RAI 1 regarding RR B-15, please discuss the ASME Code Section XI, Appendix I requirement from which procedure TXI-ISI-306 is based. If supplements apply, please discuss which supplements were used.
- b) With respect to RRs C-2 and C-4, please discuss the ASME Code Section XI, Appendix I requirement from which procedure TXI-ISI-214 is based. If supplements apply, please discuss which supplements were used.

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LUMINANT POWER RESPONSE TO REQUEST 4:

- a. As stated in the response to RAI 1 no further discussion of weld TCX-1-1300-2 is required.
- b. Per ASME Section XI, Appendix I, the subject weld examinations were conducted in accordance with Appendix III, as supplemented by Table I-2000-1. In addition to the requirements of Appendix III, the applicable supplements for vessels <2 inches in thickness from Table I-2000-1 used in preparation of the examination procedure TX-ISI-214 and for these particular examinations were:
 - 3 — Calibration Blocks for Curved Surfaces
 - 4 — Alternative Calibration Block Design
 - 6 — Pulse Repetition Rate
 - 10 — Recording Criteria
 - 11 — Geometric Reflectors
 - 12 — Flaw Sizing

NRC REQUEST 5:

For the examinations performed in RRs B-15 (if applicable), C-2, and C-4, please discuss other means attempted, if any, to achieve the ASME Code-required volume.

LUMINANT POWER RESPONSE TO REQUEST 5:

As stated in the response to RAI 1 no further discussion of weld TCX-1-1300-2 (B-15) is required. As for TCX-2-1180-1-2 (C-2) the component weld is limited by the configuration of the flange design and the proximity of two welded support plates on the shell side of the heat exchanger. No other means were attempted beyond the "Best Effort" Ultrasonic examination of weld TCX-2-1180-1-2. As for welds TCX-2-1120-1-1, TCX-2-1120-1-1WS-WA, TCX-2-1120-1-2, TCX-2-1120-1-2WS-WA, TCX-2-1120-1-3 and TCX-2-1120-1-4 (C-4) the "Best Effort" Ultrasonic Examination combining both 45 degree and 60 degree angles as well as surface Liquid Penetrant examinations were performed for each of the welds as required. No other means were attempted beyond these "Best Effort" examinations due to configuration limitations.

NRC REQUEST 6:

Please discuss any plant-specific operating experience regarding potential degradation in the subject welds in RRs C-2 and C-4, such as stress corrosion cracking or general corrosion.

LUMINANT POWER RESPONSE TO REQUEST 6:

No plant-specific operating experience regarding potential degradation in the subject welds in RRs C-2 and C-4 is identified.