



LIC-15-0086
July 2, 2015

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Fort Calhoun Station, Unit No. 1
Renewed Facility Operating License No. DPR-40
NRC Docket No. 50-285

Subject: Supplement to License Amendment Request (LAR) 14-04, Request to Adopt ASME Code, Section III, 1980 Edition (No Addenda) as an Alternative to Current Code of Record (TAC No. MF4160)

References: See Page 3

This letter is providing a revision to Appendix F, Table F-1 of the Fort Calhoun Station, Unit No. 1, Updated Safety Analysis Report (USAR) as submitted by Reference 1 and revised in References 3 and 5. The Omaha Public Power District (OPPD) discussed this issue with NRC staff during a teleconference on June 17, 2015. OPPD has revised Appendix F, Table F-1 by deleting (i.e., ~~striking out~~) the reference to footnote (d) from Load Combination 2 because the application of footnote (d) could be interpreted incorrectly. As currently written, the application of footnote (d) to Load Combination 2 could be construed to indicate that fluid transient loadings only need to be applied to the pressurizer relief valve piping and supports, which is incorrect. Fluid transient loadings should be applied to all piping for which a fluid transient is applicable.

Also, OPPD had proposed to reference footnote (d) in Service Level C of the new Load Combination table proposed for new footnote (e). However, that reference to footnote (d) has been removed to clarify that fluid transients must be considered, where applicable, as noted above. OPPD's Corrective Action Program will resolve the remaining references to footnote (d) in Appendix F, Table F-1.

Markup and re-typed (i.e. clean) USAR, Appendix F pages are attached. Please note that this change to USAR, Appendix F does not affect the proposed changes to USAR Section 1.2 or USAR Appendix G as provided in Reference 1.

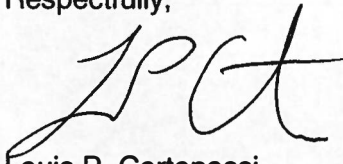
This letter contains no regulatory commitments.

In accordance with 10 CFR 50.91, a copy of this letter is being provided to the designated State of Nebraska official.

If you should have any questions regarding this submittal, please contact Mr. Bill R. Hansher, Principal Regulatory Engineer, at 402-533-6894.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 2, 2015.

Respectfully,

A handwritten signature in black ink, appearing to read 'LPC', is written over the printed name of Louis P. Cortopassi.

Louis P. Cortopassi
Site Vice President and CNO

LPC/CTH/mle

Attachments: 1. USAR Appendix F Markup Pages
2. USAR Appendix F Clean Pages

c: M. L. Dapas, NRC Regional Administrator, Region IV
C. F. Lyon, NRC Senior Project Manager
S. M. Schneider, NRC Senior Resident Inspector
Director of Consumer Health Services, Department of Regulation and Licensure,
Nebraska Health and Human Services, State of Nebraska

References:

1. Letter from OPPD (L. P. Cortopassi) to NRC (Document Control Desk), "License Amendment Request (LAR) 14-04, Revise Current Licensing Basis to Adopt American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section III, 1980 Edition, (no Addenda) as an Alternative to Current Code of Record," dated May 16, 2014 (LIC-14-0043) (ML14143A370)
2. Letter from NRC (C. F. Lyon) to OPPD (L. P. Cortopassi), "Fort Calhoun Station, Unit No.1- Request for Additional Information RE: License Amendment Request to Adopt ASME Code, Section III, 1980 Edition (no Addenda) as an Alternative to Current Code of Record (TAC No. MF4160)," dated September 24, 2014 (NRC-14-0110) (ML14259A365)
3. Letter from OPPD (L. P. Cortopassi) to NRC (Document Control Desk), "OPPD Response to NRC Request for Additional Information Regarding License Amendment Request (LAR) 14-04, Request to Adopt ASME Code, Section III, 1980 Edition (no Addenda) as an Alternative to Current Code of Record (TAC No. MF4160)," dated January 9, 2015 (LIC-15-0002) (ML15009A319)
4. Letter from NRC (C. F. Lyon) to OPPD (L. P. Cortopassi), "Fort Calhoun Station, Unit No. 1 - Request for Additional Information Round 2 RE: License Amendment Request to Adopt ASME Code, Section III, 1980 Edition (no Addenda) as an Alternative to Current Code of Record (TAC No. MF4160)," dated February 25, 2015 (NRC-15-005) (ML15043A061)
5. Letter from OPPD (L. P. Cortopassi) to NRC (Document Control Desk), "OPPD Response to Second Round NRC Request for Additional Information Regarding License Amendment Request (LAR) 14-04, Request to Adopt ASME Code, Section III, 1980 Edition (no Addenda) as an Alternative to Current Code of Record (TAC No. MF4160)," dated March 27, 2015 (LIC-15-0043) (ML15086A545)

USAR Markup Pages

Table F-1 - Loading Combinations and Primary Stress Limits

<u>Loading Combinations</u>	<u>Primary Stress Limits</u>		
	<u>Vessels</u>	<u>Piping (e)</u>	<u>Supports (f)</u>
1. Design Loading + Design Earthquake	$P_M \leq S_M$ $P_B + P_L \leq 1.5S_M$	$P_M \leq 1.2S_h$ $P_B + P_M \leq 1.2S_h$	Working Stress Anchor Bolts F.S. ≥ 4.0 (d)
2. Normal Operating Loadings + (Maximum Hypothetical Earthquake + (Fluid Transient Loadings (g))) (g))	$P_M \leq S_D$ $P_B \leq 1.5 \left[1 - \left(\frac{P_M}{S_D} \right)^2 \right] S_D$ (b)	$P_M \leq S_D$ $P_B \leq \frac{4}{\pi} S_D \cos \left(\frac{\pi}{2} \times \frac{P_M}{S_D} \right)$ (c)	Within Yield Anchor Bolts F.S. ≥ 2.0 (d)
3. Normal Operating Loadings + (Pipe Rupture + Maximum Hypothetical Earthquake (g))	$P_M \leq S_L$ $P_B \leq 1.5 \left[1 - \left(\frac{P_M}{S_L} \right)^2 \right] S_L$ (b)	$P_M \leq S_L$ $P_B \leq \frac{4}{\pi} S_L \cos \left(\frac{\pi}{2} \times \frac{P_M}{S_L} \right)$ (a), (c)	Deflection of supports limited to maintain supported equipment within limits shown

Table F-1 - Loading Combinations and Primary Stress Limits (Continued)

NOTES:

- (a) These stress criteria are not applied to a piping run within which a pipe break is considered to have occurred.
- (b) Loading combinations 2 and 3, stress limits for vessels, are also used in evaluating the effects of local loads imposed on vessels and/or piping, with the symbol P_M changed to P_L .
- (c) The tabulated limits for piping are based on a minimum "shape factor". These limits are modified to incorporate the shape factor of the particular piping being analyzed.
- (d) These load cases and limits apply only to the Pressurizer relief valve piping and supports.
- (e) As an alternative to USAS B31.7, 1968, Class 1, 2, and 3, non-reactor coolant loop piping analysis may also be performed in accordance with ASME III, 1980 Edition (no Addenda). Material properties shall be from the original code of record (i.e., USAS B31.7, 1968). Associated stress limits shall be in accordance with ASME III, 1980 Edition (no Addenda) for Service Levels as shown below:

<u>Load Combination</u>
<u>Service Level A: Design Loading (Pressure, Weight, Other Mechanical Loadings, and Thermal where applicable)</u>
<u>Service Level B: Design Loading + Design Earthquake</u>
<u>Service Level C: Normal Operating Loadings + (Maximum Hypothetical Earthquake + (Fluid Transient Loading) (g))</u>
<u>Service Level D: Normal Operating Loadings + (Maximum Hypothetical Earthquake + Pipe Rupture (g))</u>

- (f) Support analysis will continue to be performed in accordance with the existing licensing basis (i.e., Seventh Edition, AI SC, American Institute of Steel Construction).
- (g) Square-Root-Sum-of-the-Squares may be used to combine loads.

USAR Clean Pages

Table F-1 - Loading Combinations and Primary Stress Limits

Primary Stress Limits			
<u>Loading Combinations</u>	<u>Vessels</u>	<u>Piping (e)</u>	<u>Supports (f)</u>
1. Design Loading + Design Earthquake	$P_M \leq S_M$ $P_B + P_L \leq 1.5S_M$	$P_M \leq 1.2S_h$ $P_B + P_M \leq 1.2S_h$	Working Stress Anchor Bolts F.S. ≥ 4.0 (d)
2. Normal Operating Loadings + (Maximum Hypothetical Earthquake + (Fluid Transient Loadings)(g))	$P_M \leq S_D$ $P_B \leq 1.5 \left[1 - \left(\frac{P_M}{S_D} \right)^2 \right] S_D$ (b)	$P_M \leq S_D$ $P_B \leq \frac{4}{\pi} S_D \cos \left(\frac{\pi}{2} \times \frac{P_M}{S_D} \right)$ (c)	Within Yield Anchor Bolts F.S. ≥ 2.0 (d)
3. Normal Operating Loadings + (Pipe Rupture + Maximum Hypothetical Earthquake(g))	$P_M \leq S_L$ $P_B \leq 1.5 \left[1 - \left(\frac{P_M}{S_L} \right)^2 \right] S_L$ (b)	$P_M \leq S_L$ $P_B \leq \frac{4}{\pi} S_L \cos \left(\frac{\pi}{2} \times \frac{P_M}{S_L} \right)$ (a), (c)	Deflection of supports limited to maintain supported equipment within limits shown

Table F-1 - Loading Combinations and Primary Stress Limits (Continued)

NOTES:

- (a) These stress criteria are not applied to a piping run within which a pipe break is considered to have occurred.
- (b) Loading combinations 2 and 3, stress limits for vessels, are also used in evaluating the effects of local loads imposed on vessels and/or piping, with the symbol P_M changed to P_L .
- (c) The tabulated limits for piping are based on a minimum "shape factor". These limits are modified to incorporate the shape factor of the particular piping being analyzed.
- (d) These load cases and limits apply only to the Pressurizer relief valve piping and supports.
- (e) As an alternative to USAS B31.7, 1968, Class 1, 2, and 3, non-reactor coolant loop piping analysis may also be performed in accordance with ASME III, 1980 Edition (no Addenda). Material properties shall be from the original code of record (i.e., USAS B31.7, 1968). Associated stress limits shall be in accordance with ASME III, 1980 Edition (no Addenda) for Service Levels as shown below:

Load Combination
Service Level A: Design Loading (Pressure, Weight, Other Mechanical Loadings, and Thermal where applicable)
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Service Level C: Normal Operating Loadings + (Maximum Hypothetical Earthquake + (Fluid Transient Loading) (g))
Service Level D: Normal Operating Loadings + (Maximum Hypothetical Earthquake + Pipe Rupture (g))

- (f) Support analysis will continue to be performed in accordance with the existing licensing basis (i.e., Seventh Edition, AI SC, American Institute of Steel Construction).
- (g) Square-Root-Sum-of-the-Squares may be used to combine loads.