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U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555
ATTN: David B. Matthews, Director
Division of New Reactor Licensing

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 3 AND 4
DOCKET NUMBERS 52-034 AND 52-035
SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
NO. 2818 (SECTION 3.3.1) AND 2819 (SECTION 3.3.2)

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein supplemental information for the response to Request for Additional Information (RAI) No. 2818 and 2819 for the Combined License Application for Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4.

The response to RAI No. 2818 (ML093010366) and 2819 (ML093130123) stated that seismic Category I shallow-embedded duct banks and pipe chases were included in Final Safety Analysis Report Chapter 3 in the anticipation that such items would be needed. The supplemental information provided for the response to RAI No. 4841 (letter TXNB-10073 dated October 21, 2010) clarified that currently there are no seismic Category I shallow embedded duct banks or pipe chases planned for CPNPP Units 3 and 4. Based on that statement, this letter provides supplemental information to clarify the response to RAI No. 2818 and 2819.

This submittal completes Regulatory Commitment #8131 made in letter TXNB-10073 on October 21, 2010. There are no new commitments in this letter.

Should you have any questions regarding this supplemental information, please contact Don Woodlan (254-897-6887, Donald.Woodlan@luminant.com) or me

I state under penalty of perjury that the foregoing is true and correct.

Executed on November 8, 2010.

Sincerely,

Luminant Generation Company LLC


Rafael Flores for

DO90
HRO

- Attachments: 1. Supplemental Response to Request for Additional Information No. 2818
(CP RAI #54)
2. Supplemental Response to Request for Additional Information No. 2819
(CP RAI #66)

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SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4
Luminant Generation Company LLC
Docket Nos. 52-034 and 52-035

RAI NO.: 2818 (CP RAI #54)

SRP SECTION: 03.03.01 - Wind Loading

QUESTIONS for Structural Engineering Branch 1 (AP1000/EPR Projects)(SEB1)

DATE OF RAI ISSUE: 9/14/2009

QUESTION NO.: 03.03.01-1

In order for the NRC staff to determine whether the selected method can be used to determine the design wind loads for the site-specific Seismic Category I reinforced concrete duct banks (solid) and reinforced concrete chases (hollow) that house the yard piping and conduit in accordance with ASCE/SEI 7-05 requirements, additional information about the method is requested to demonstrate compliance with General Design Criterion (GDC)-2 in 10 CFR 50, Appendix A.

Design wind loads for buildings and other structures, including the Main Wind-Force Resisting Systems (MWFRS) and components, may be determined using one of three procedures defined in ASCE/SEI 7-05, Section 6.1.2. The combined license (COL) applicant may select either Method 1 – Simplified Procedure, Method 2 – Analytical Procedure, or Method 3 – Wind Tunnel Procedure described in ASCE/SEI 7-05 to determine design wind loads for the reinforced concrete duct banks and chases.

The COL applicant is requested to identify and describe the wind load design method used to design the site-specific Seismic Category I reinforced concrete duct banks (solid) and reinforced concrete chases (hollow) that house the yard piping and conduit. This information is needed to allow the NRC staff to evaluate the applicability of the design method for converting wind speed to wind loads on these structures. As such, the COL applicant is requested to provide an analysis that explains:

- The portions of the reinforced concrete duct banks (solid) and reinforced concrete chases (hollow) that house the yard piping and conduit that are affected by wind.
 - Which method in ASCE/SEI 7-05 (Method 1, 2, or 3) is used by the COL applicant to design the site-specific Seismic Category I reinforced concrete duct banks (solid) and reinforced concrete chases (hollow) that house the yard piping and conduit.
 - The rationale and technical basis for characterizing these structures as either open, partially vented, or enclosed based on definitions in ASCE/SEI 7-05, Section 6.2.
 - How these structures satisfy the conditions listed in either ASCE/SEI 7-05, Section 6.4.1.1 for Method 1, Section 6.5.1 for Method 2, or Section 6.6.2 for Method 3, as applicable.
-

ANSWER:

The response to this question (ML093010366) stated that seismic category I shallow-embedded duct banks and pipe chases are included in FSAR Chapter 3 in the anticipation that such items would be needed. However, as the design progressed, it became apparent these structures are not necessary. In conjunction with the supplemental information provided for the Response to Request for Additional Information No. 4814 (CP RAI #170) in TXNB-10073 dated October 21, 2010 (ML102980032), the following supersedes the response to Question 03.03.01-1:

“There are no seismic Category I shallow embedded duct banks or pipe chases planned for CPNPP Units 3 and 4.”

Impact on R-COLA

None.

Impact on DCD

None.

SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4
Luminant Generation Company LLC
Docket Nos. 52-034 and 52-035

RAI NO.: 2819 (CP RAI #66)

SRP SECTION: 03.03.02 - Tornado Loads

QUESTIONS for Structural Engineering Branch 1 (AP1000/EPR Projects)(SEB1)

DATE OF RAI ISSUE: 9/20/2009

QUESTION NO.: 03.03.02-4

Design wind loads for buildings and other structures, including the Main Wind-Force Resisting Systems (MWFRS) and components, may be determined using one of three procedures defined in ASCE/SEI 7-05, Section 6.1.2. In order for the NRC staff to determine whether Method 1, 2, or 3 can be used to determine the design wind loads for the site-specific Seismic Category I yard piping and conduits in accordance with ASCE/SEI 7-05, additional information about the response characteristics of the site-specific Seismic Category I yard piping and conduits to tornado-generated wind effects is requested to demonstrate compliance with GDC-2 in 10 CFR 50, Appendix A.

The CPNPP includes site-specific Seismic Category I yard piping and conduits that are routed within reinforced concrete duct banks (solid) or reinforced concrete chases (hollow). The duct banks and chases have shallow embedments and are buried partially or wholly below grade within structurally engineered and compacted backfill that extends down to the top of the limestone at nominal elevation 782 ft. Therefore, the COL applicant is requested to submit the following information for the site-specific Seismic Category I yard piping and conduits.

- The method defined in ASCE/SEI 7-05, Section 6.1.2 that was used to transform wind speed into pressure-induced forces applied to each of these site-specific Seismic Category I structures.
 - Design details about each of these site-specific, Seismic Category I structures that can be used to evaluate compliance with the conditions for Method 1, 2 or 3 defined in ASCE/SEI 7-05, Section 6.4.1.1, 6.5.1, or 6.6.2, as applicable.
 - A structural assessment of atmospheric pressure change effects, if any, for each of these site-specific Seismic Category I structures due to venting.
 - An assessment of tornado missile impact effects, if any, for each of these site-specific Seismic Category I structures.
 - A description of the methodology used to determine the maximum tornado wind load effects for each of these site-specific Seismic Category I structures.
-

ANSWER:

The response to this question (ML093130123) stated that seismic category I shallow-embedded duct banks and pipe chases are included in FSAR Chapter 3 in the anticipation that such items would be needed. However, as the design progressed, it became apparent these structures are not necessary. In conjunction with the supplemental information provided for the Response to Request for Additional Information No. 4814 (CP RAI #170) in TXNB-10073 dated October 21, 2010 (ML102980032), the following supersedes the response to Question 03.03.02-4:

“There are no seismic Category I shallow embedded duct banks or pipe chases planned for CPNPP Units 3 and 4.”

The changes made to FSAR Subsections 3.3.1.2, 3.3.2.2.2, and 3.3.2.2.4 (ML093130123) have been removed to delete all references to shallow-embedded duct banks or pipe chases.

Impact on R-COLA

See attached marked-up FSAR Revision 1 pages 3.3-2 and 3.3-3.

Impact on DCD

None.

Comanche Peak Nuclear Power Plant, Units 3 & 4
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loading. As shown in FSAR Figures 3.8-206 through 3.8-211, the UHSRS complex is comprised of relatively low-rise, nearly rectangular structures that do not include any unusual or irregular geometric shapes and are constructed of reinforced concrete walls, floors, and roofs. Therefore, based on the configuration and properties of the UHSRS complex, method 2 of ASCE/SEI 7-05 is an appropriate method of wind load design.

RCOL2_03.0
3.02-3

- The exposed portions of the ESWPT (seismic category I) and power source fuel storage vaults (PSFSVs) (seismic category I) are analyzed using method 1 of ASCE/SEI 7-05 (Reference 3.3-1) and an importance factor of 1.15.
- ~~Portions of shallow embedded duct banks or chases, which are exposed at the interface with other structures, are analyzed using the same ASCE/SEI 7-05 (Reference 3.3-1) method as the structure with which they interface, and an importance factor of 1.15.~~

RCOL2_03.0
3.02-4

CPNPP Units 3 and 4 do not have site-specific seismic category II buildings and structures.

CTS-00638

3.3.2.2.2 Tornado Atmospheric Forces

CP COL 3.3(5) Replace the last paragraph in DCD Subsection 3.3.2.2.2 with the following.

Site-specific seismic category I structures include ~~shallow embedded duct bank/chases~~, the UHSRS, ESWPT, and the PSFSVs.

RCOL2_03.0
3.02-4

The UHSRS, including the pump houses and transfer pump rooms, are configured with large openings and/or vents. The UHS basins and cooling tower enclosures and are therefore designed as vented with respect to tornado atmospheric differential pressure loading. Venting of the pump houses and transfer pump rooms is anticipated during a tornado event, however, for the purpose of structural design, the external walls, internal walls, and slabs of the pump houses and transfer pumps rooms are conservatively designed as unvented and the full tornado atmospheric differential pressure loading is applied. Since the full pressure differential for the structural elements is considered, a depressurization model is not used for the structural design. Where applicable, interior walls are designed considering tornado differential atmospheric pressure loading.

RCOL2_03.0
3.02-6

The ESWPT and PSFSV structures are designed as unvented because they do not have openings that permit depressurization during a tornado.

~~The tornado atmospheric pressure loading on shallow embedded duct banks and chases is described as follows. The portions of the duct banks (solid) or chases (hollow) which are wholly embedded are not subjected to atmospheric differential pressure effects. The exposed at ground level portions of chases, which are unvented, are assessed for the full effects of tornado atmospheric differential pressure.~~

RCOL2_03.0
3.02-4

Comanche Peak Nuclear Power Plant, Units 3 & 4
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3.3.2.2.4 Combined Tornado Effects

CP COL 3.3(2) Replace the first and second sentences of the last paragraph in DCD Subsection 3.3.2.2.4 with the following.

Site-specific seismic category I structures, i.e., the UHSRS and exposed portions of ~~shallow embedded duct banks/chases~~, the ESWPT and PSFSVs, are designed for the same tornado loadings and combined tornado effects using the same methods for qualification described for standard plant SSCs.

RCOL2_03-0
3-02-4

3.3.2.3 Effect of Failure of Structures or Components Not Designed for Tornado Loads

CP COL 3.3(3) Replace the last paragraph of DCD Subsection 3.3.2.3 with the following.

Other miscellaneous NS buildings and structures in the plant yard are located and/or anchored such that their failure will neither jeopardize safety-related SSCs nor generate missiles not bounded by those discussed in Subsection 3.5.1.4. Further, any site-specific or field routed safety-related SSCs in the plant yard are evaluated prior to their installation to determine if structural reinforcement and/or missile barriers are required to ensure their function and integrity.

3.3.3 Combined License Information

Replace the content of DCD Subsection 3.3.3 with the following.

CP COL 3.3(1) **3.3(1) Wind speed requirements**

This COL item is addressed in Subsection 3.3.1.1.

CP COL 3.3(2) **3.3(2) Tornado loadings and combined tornado effects**

This COL item is addressed in Subsection 3.3.2.2.4.

CP COL 3.3(3) **3.3(3) Structures not designed for tornado loads**

This COL item is addressed in Subsection 3.3.2.3.

CP COL 3.3(4) **3.3(4) Wind load design methods and importance factors**

This COL item is addressed in Subsection 3.3.1.2.