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
F 254.897.6652
C 817.559.0403

CP-201300791
Log # TXNB-13023

Ref. # 10 CFR 52

June 27, 2013

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
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION 274 (7059)
(SECTION 19.2)

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein the response to Request for Additional Information (RAI) 274 (7059) for the Comanche Peak Nuclear Power Plant Units 3 and 4 Combined License Application. The RAI addresses the impact of tank failures on safety-related structures, systems, and components.

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

There are no commitments in this letter.

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

Executed on June 27, 2013.

Sincerely,

Luminant Generation Company LLC

Donald R. Woodlan for

Rafael Flores

Attachment: Response to Request for Additional Information 274 (7059)

D090
NRO

Electronic distribution w/attachment:

Rafael.Flores@luminant.com
jeffry.simmons@luminant.com
Stephanie.Moore@energyfutureholdings.com
Ken.Peters@luminant.com
Robert.Bird@luminant.com
Allan.Koenig@luminant.com
Timothy.Clouser@luminant.com
Eric.Evans@luminant.com
Robert.Reible@luminant.com
donald.woodlan@luminant.com
John.Conly@luminant.com
Janice.Caldwell@luminant.com
David.Beshear@txu.com
Fred.Madden@luminant.com
Debra.Gilliam@luminant.com
Brad.Watson@luminant.com
NuBuild Licensing files
sfrantz@morganlewis.com
jrund@morganlewis.com
tmatthews@morganlewis.com
tomo_imamura@mhi.co.jp
masahiko_morino@mhi.co.jp
kano_saito@mhi.co.jp
shigemitsu_suzuki@mhi.co.jp
yoshiki_ogata@mnes-us.com
Luminant Records Management (.pdf files only)
masanori_onozuka@mnes-us.com
greg_rolfson@mnes-us.com
joseph_tapia@mnes-us.com
michael_melton@mnes-us.com
michael_tschiltz@mnes-us.com
atsushi_kumaki@mnes-us.com
yukako_hill@mnes-us.com
nicholas_kellenberger@mnes-us.com
ryan_sprengel@mnes-us.com
molly_spalding@mnes-us.com
rjb@nei.org
kra@nei.org
michael.takacs@nrc.gov
cp34update@certrec.com
David.Matthews@nrc.gov
Balwant.Singal@nrc.gov
Stephen.Monarque@nrc.gov
jeff.ciocco@nrc.gov
john.kramer@nrc.gov
Rayo.Kumana@nrc.gov
Frank.Akstulewicz@nrc.gov
ComanchePeakCOL.Resource@nrc.gov
Sujata.Goetz@nrc.gov
Art.Howell@nrc.gov
Samuel.Lee@nrc.gov

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Comanche Peak, Units 3 and 4

Luminant Generation Company LLC

Docket Nos. 52-034 and 52-035

RAI 274 (7059)

SRP SECTION: 19.02 - Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance

DATE OF RAI ISSUE: 4/23/2013

QUESTION NO.: 019.02-1

In section 19.2.3.3.7 of the CP COL FSAR you provide the following information for Standard COL information item 19.3(7):

"Replace the second-to-last paragraph in DCD Subsection 19.2.3.3.7 with the following.
An equipment survivability assessment will be performed prior to fuel load of the as-built equipment required to maintain safe shutdown and containment structural integrity to provide reasonable assurance that they will operate in the environmental conditions resulting from hydrogen burns associated with severe accidents for which they are intended and over the time span for which they are needed. This assessment is required only for equipment used for severe accident mitigation that has not been tested at severe accident conditions. The ability of the as-built equipment to perform during severe accident hydrogen burns will be assessed using the Environment Enveloping method or the Test Based Thermal Analysis method discussed in EPRI NP-4354 (Reference 19.2-11)."

Based on review of the information provided in the above COL item the staff determined that the above information in conjunction with the information that is in the U.S APWR DCD Revision 3 is not sufficient for a staff finding, before the Comanche Peak Nuclear Power Plant (CPNPP) COL is issued, that there is assurance that the procured equipment will survive a severe accident, in accordance with 10 CFR 50.44(c)(3), and perform their function in accordance with CFR 50.44(c)(5). The staff determined that the response to Information item 19.3(7) constitutes a commitment to provide information (i.e. the equipment survivability assessment findings on as-built equipment). The staff determined that, in addition to the above, a commitment to update the CCNPP design basis with the results of the severe accident survivability study on as-procured equipment is needed for the staff to make a determination on these regulations.

Interim Staff Guidance on Post-Combined License Commitments, ESP/DC/COL-ISG-015, describes several options for treatment of post-licensing commitments and clarifies that the NRC staff will make the determination as to which is the most appropriate option. Therefore in accordance with ISG-015, the staff requests the following information:

Revise the COL information item response to provide information (such as the findings of the equipment survivability assessment on as-procured equipment) sufficient for the staff to make findings on compliance of CPNPP with the requirements of 10 CFR 50.44(c)(3) and (c)(5) as they apply to the procured equipment, identified in Tier 2 Chapter 19.2, needed to function to mitigate a severe accident.

Alternatively, clarify the COL FSAR, or indicate where in the COL FSAR there is a justification why this information cannot be provided to the NRC staff before the COL is issued. Identify COL 19.3(7) as an item on the list of those COL items that cannot be completely resolved prior to COL issuance. With this alternative,

1. Clarify the DCD to state for each component that is currently identified in DCD Tier 2 Chapter 19.2.3.3.7, the corresponding severe accident condition parameter (i.e. the pressure, temperature and time values), currently described in Section 15.7 of the PRA technical report "US-APWR Probabilistic Risk Assessment", to which the component must be designed to withstand. And,

Identify new site-specific ITAAC in the CPNPP COLA to control the activity to reconcile the design basis information with as-procured equipment information. Acceptance criteria for such ITAAC would confirm that the procured and installed equipment that is currently identified in DCD Tier 2 Chapter 19.2.3.3.7 is capable of surviving the environmental conditions associated with a severe accident that includes the burning of hydrogen, conditions as currently described in Section 15.7 of the PRA technical report "US-APWR Probabilistic Risk Assessment". Specify the equipment and the corresponding severe accident conditions for each component, and revise COL Tier 2 in accordance with item 1 above such that this US-APWR DCD Tier 1 information and ITAAC is derived from COLA Tier 2 information. Or,

2. Propose, in accordance with the U.S. APWR DC applicant, plans for equivalent new or revised ITAAC within the scope of the US-APWR certified design. Or,

3. Propose a new license condition to control the as-built reconciliation activity. The license condition would serve as a commitment to update the FSAR with as-procured material information and to allow for confirmation by the NRC via inspection that the as-procured information is bounded by the original assumptions regarding the ability of the equipment to withstand the environmental conditions associated with the burning of hydrogen. This would be an FSAR information commitment included in a license condition to include the severe accident equipment survivability assessment study results and other information on this matter in the design basis of the facility. The information commitment should specify the information to be added to the FSAR. This information is that which should be reviewed as part of the design basis for the facility when reviews and evaluations such as those performed in accordance with 10 CFR 50.54(f), 10 CFR 50.59 and 10 CFR 50.65 are required. The proposed license condition should be included in an appropriate section of the COL application to facilitate identification and tracking. The proposed license condition should also include a milestone schedule (i.e. "prior to fuel load") of the availability of the information for inspection by the staff, along with a milestone schedule (i.e. "prior to fuel load") for ensuring that the specific FSAR information identified is included in an FSAR update required by 10 CFR 50.71(e). It should be noted that more recent DC applications have included as-built confirmations in an ITAAC rather than a COL action item.

In addition provide a discussion on what programs exist, for this equipment, that provide assurance that compliance with 10 CFR 50.44(c)(3) and (c)(5) is periodically assessed throughout the operating life of the plant.

ANSWER:

Equipment survivability requirements are specified in US-APWR DCD Subsection 19.2.3.3.7. This subsection includes all the relevant design information for the survivability assessments except for confirmation that the as-built components have successfully completed the survivability assessment process. This confirmation is captured as COL Item 19.3(7), but the capability of the as-built equipment cannot be demonstrated prior to COL issuance because the equipment will not be procured by then.

NUREG-0800, SRP 14.3 (March 2007), states that, in general, the capabilities of severe accident features need not be included in the ITAAC. Based on this guidance, Luminant reviewed the

alternatives discussed in the question and in guidance document ESP/DC/COL-ISG-015, and concluded that an FSAR commitment is an appropriate option to ensure completion of the post-licensing commitment needed to address COL Item 19.3(7). As stated in the question, FSAR Subsection 19.2.3.3.7 includes a commitment to provide a survivability assessment for as-built equipment prior to fuel load. Per ISG-015, when a COL applicant uses the "FSAR Commitment" option to address the completion of a post-licensing COL action, the FSAR commitment is to provide updated information in the FSAR, which contains the design basis portion of the licensing basis. To comply with this guidance, the discussion in Subsection 19.2.3.3.7 has been modified to specify that the FSAR will be updated prior to fuel load to confirm completion of the survivability assessments required for the specified equipment and to document the conclusion that the as-built equipment meets the survivability requirements of the US-APWR.

Subsection 1.8.1.2 and Table 1.8-201 have also been modified to identify that COL Item 19.3(7) is a COL action item that cannot be completely resolved before the COL is issued and that the COL item will be addressed via an FSAR commitment, consistent with the guidance provided in ISG-015.

Impact on R-COLA

See attached marked-up FSAR Revision 3 pages 1.8-3, 1.8-81, 1.8-83, and 19.2-1.

Impact on DCD

None

of these procedures are proposed as "regulatory commitments" of COL Applicant.

3. Design information:

3a. Information needed in the COL application to meet the guidelines of RG 1.206, and additional/supplementary information that is available for NRC staff review.

3b. Sufficient design information necessary to the COL application that will be provided in the FSAR updates before the Issuance of the COL is proposed as "regulatory commitments" of COL Applicant.

3c. Design information depending on as-procured/as-built information that will be addressed in the FSAR updates after issuance of the COL, or will be demonstrated under the construction inspection program (except for ITAAC program). Per the guidance of ESP/DC/COL-ISG-015, ~~T~~the FSAR in the COL application includes commitments and information sufficient for the NRC to conclude its safety evaluation. RCOL2_19.02-1

4. Detailed schedule information: Detailed schedule information cannot be fixed during the COLA review phase and is subject to change in accordance with the progress of design or construction. Such detailed schedule information is proposed as "regulatory commitments" of COL Applicant.

5. The inspections, tests, analyses, and acceptance criteria (ITAAC): Information that will be verified in the ITAAC.

The column entitled "Resolution Category" in Table 1.8-201 indicates the resolution status of each COL item categorized to 1a, 1b, 2, 3a, 3b, 3c, 4, or 5 as noted above.

CP COL 1.8(3)

1.8.1.3 Summary of Departures

There are no departures from the US-APWR DCD in the FSAR.

STD COL 1.8(3)

1.8.1.4 Conformance with Site Parameters

The site parameters assumed for the US-APWR design certification are found in Section 2.1 of Tier 1 of the referenced US-APWR DCD, and in Chapter 2.0 of Tier 2 of the referenced US-APWR DCD. Conformance with these site parameters is evaluated in Chapter 2.0.

CP COL 1.8(2)

Table 1.8-201 (Sheet 70 of 72)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 19.3(6)	The COL Applicant develops or describes an accident management program which includes emergency operating procedures, consideration of risk-significant operator actions listed in DCD Table 19.1-119, training, and human reliability related severe accident guidance programs. Insights gained from the design specific PRA, including insights created by the incorporation of site and plant-specific information available at the COL application phase (for aspects of the design which are not bounded by the Standard Plant PRA), are to be reflected appropriately. The COL Applicant reviews that operator actions remain valid with respect to all applicable events and modes of operation. As detailed design information becomes available and site-specific procedures are developed, the human reliability analysis in the PRA is revised and updated.	19.2.5 Table 19.1-119R	2	RCOL2_19-24
COL 19.3(7)	The COL Applicant will provide a milestone for completing the equipment survivability assessment of the as-built equipment required to mitigate severe accidents (electrical penetrations, hydrogen igniters and containment pressure (wide range)) to provide reasonable assurance that they will operate in the environmental conditions resulting from hydrogen burns associated with severe accidents for which they are intended and over the time span for which they are needed.	19.2.3.3.7	3~~a~~c	RCOL2_19.02-1

CP COL 1.8(2)

Table 1.8-201 (Sheet 72 of 72)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 19.3(9)	The COL applicant will describe the PRA maintenance and upgrade programs.	19.1.2.4	1b	
COL 19.3(10)	The site-specific PRA will be developed when site-specific information becomes available. The COL Applicant will evaluate and address the key sources of uncertainty and key assumptions listed in DCD Table 19.1-38. By conducting walkdowns during construction, the COL Applicant will assess and update as needed (i) key insights and assumptions (identified in DCD Table 19.1-119), (ii) routing and locations of piping and cables assumed in the internal fire and flooding events, and (iii) fragility values used in the seismic margin analysis that are important to the risk profile of the facility; the COL Applicant will confirm that this information is accurately reflected in the as-built design and construction. Differences between the as-built plant and the design used as the basis for the US-APWR PRA will be reviewed to determine whether there is significant impact on PRA results.	19.1.4.1.2	3a	RCOL2_19-24

Note:

The designation of the resolution category indicates the resolution status of each COL item, which is categorized ~~to~~as 1a, 1b, 2, 3a, 3b, 3c, 4, or 5 per Subsection 1.8.1.2. RCOL2_19.02-1

1. Operational programs
   - 1a. Applicant item as License Condition for Operational program
   - 1b. Applicant item as Commitment for Operational program
2. Plant procedures
3. Design information
   - 3a. Applicant item Design information provided in FSAR
   - 3b. Applicant item as Commitment for Design information to be provided before COL issuance
   - 3c. ~~Not used~~Applicant item as FSAR Commitment per ESP/DC/COL-ISG-015 RCOL2_19.02-1
4. Detailed schedule information
5. The inspections, tests, analyses, and acceptance criteria (ITAAC) RCOL2_19.02-1

~~(See Subsection 1.8.1.2 for further discussion.)~~

19.2 SEVERE ACCIDENT EVALUATION

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

19.2.3.3.7 Equipment Survivability

STD COL 19.3(7) Replace the second-to-last paragraph in DCD Subsection 19.2.3.3.7 with the following.

~~An e~~Equipment survivability assessments will be performed prior to fuel load of the as-built equipment required to maintain safe shutdown and containment structural integrity to provide reasonable assurance that they will operate in the environmental conditions resulting from hydrogen burns associated with severe accidents for which they are intended and over the time span for which they are needed. The FSAR will be updated prior to fuel load to state that the assessments have been performed and document the conclusion that the as-built equipment meets the survivability requirements. These~~is~~ assessments ~~is~~are required only for equipment used for severe accident mitigation that has not been tested at severe accident conditions. The ability of the as-built equipment to perform during severe accident hydrogen burns will be assessed using the Environment Enveloping method or the Test Based Thermal Analysis method discussed in EPRI NP-4354 (Reference 19.2-11). RCOL2_19.02-1 RCOL2_19.02-1

19.2.5 Accident Management

STD COL 19.3(6) Add the following text after the last paragraph in DCD Subsection 19.2.5.

An accident management program will be developed, in which severe accident management procedures that capture important operator actions described in the severe accident management framework are included. The accident management program will incorporate the instructions provided in NEI 91-04 Revision 1 (Reference 19.2-201). Development of emergency operating procedures is addressed in Subsection 13.5.2.1. Training requirements will also be developed as part of the accident management program addressed in DCD Section 18.9, and training for operators will be completed prior to first fuel load.
