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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
TECHNICAL SPECIFICATION PROGRAMS IMPLEMENTATION METHODOLOGY

Dear Sir:

During a public meeting on January 11, 2011, Luminant Generation Company LLC committed to generate a methodology document that addresses how the Risk-Managed Technical Specifications and the Surveillance Frequency Control Program (SFCP) will be implemented for Technical Specifications 5.5.18 and 5.5.19. That methodology is submitted herein.

The methodology incorporates by reference NEI 06-09 and NEI 04-10, and proposes changes that would make the guidance documents applicable for combined license applicants under 10 CFR 52. The methodology addresses the basic elements of the Configuration Risk Management Program (CRMP) and the SFCP, including staff organization, responsibilities, training requirements, risk metrics, and the essential elements of the PRA needed to support the programs.

Should you have any questions regarding the methodology, 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 30, 2011.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

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Attachment: Comanche Peak Nuclear Power Plant Units 3 and 4 Technical Specification Methodology

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NRO

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Comanche Peak Nuclear Power Plant Units 3 and 4

Technical Specification Methodology for Risk-Managed Technical Specifications and Surveillance Frequency Control Program

June 29, 2011

Contents

1.0 Introduction

This methodology addresses how the Risk-Managed Technical Specification (RMTS) and the Surveillance Frequency Control Program (SFCP) are proposed to be implemented for Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4 Technical Specifications (TS) 5.5.18 and 5.5.19, respectively.

As noted in these two specifications, actions are to be taken in accordance with NEI 06-09 (Revision 0) for RMTS and NEI 04-10 (Revision 1) for SFCP. Both of these documents were originally written for plants that are currently operating. Section 2.0 of this methodology incorporates these NEI documents by reference and proposes the changes needed to make the documents applicable to CPNPP Units 3 and 4. Section 3.0 provides a complete description of the programs and addresses the technical adequacy of the PRA to support these programs. Finally, Section 4.0 provides discussion on the use of existing risk metrics applied to these risk informed applications.

This methodology applies to CPNPP Units 3 and 4 from issuance of the COL through construction and subsequent operation of the units. Changes to the TS after COL issuance will be performed in accordance with the 10 CFR 50.59 process.

2.0 Incorporation of NEI Documents

TS 5.5.18 and TS 5.5.19 incorporate by reference NEI 06-09 and NEI 04-10, respectively. These NEI documents address many aspects of the RMTS and SFCP. In order to fully implement the documents, they are incorporated by reference into the Technical Specification Methodology for CPNPP Units 3 and 4 with the modifications needed to make them fully applicable to these plants. The full incorporation is addressed in Subsections 2.1 and 2.2.

2.1 NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines"

NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines" is incorporated by reference into this methodology with the following revisions. These revisions serve to modify the NEI 06-09, which is guidance for operating plants, to make it applicable to pre-operating CPNPP units 3 and 4. These modifications are necessary as NEI 06-09 was prepared for plants with an operating license (OL) and CPNPP is a new plant with a combined license (COL). This section of the methodology is considered to be the basis for a future addendum to NEI 06-09.

General

NEI 06-09 relies on several other documents including Regulatory Guides 1.174 and 1.177. SRM-SECY-10-0121 states:

> The Commission reaffirms that the existing safety goals, safety performance expectations, subsidiary risk goals and associated risk guidance (such as the Commission's 2008 Advanced Reactor Policy Statement and Regulatory Guide 1.174), key principles and quantitative metrics for implementing risk-informed decision making, are sufficient for new plants.

CPNPP proposes to use the aspects of these documents as described in NEI 06-09 and the addendum below.

2.3.4 PRA Technical Adequacy

Item 2, replace the first sentence with:

> The PRA shall be reviewed against Capability Category 2 for the supporting requirements important to RMTS of NRC-endorsed consensus standards on PRA in effect one year prior to initial fuel load. The review will consider and accept that the plant does not

yet have operating experience to be included in the PRA and the plan to add this experience at a later date.

Item 10: after the first sentence, insert the following sentence:

Key sources of uncertainty and key assumptions of the US-APWR DCD PRA documented in US-Advanced Pressurized Water Reactor (APWR) Design Control Document (DCD) Chapter 19, Table 19.1-38 will be reviewed. Uncertainty associated with the lack of operating experience and lack of reliability data on innovative designs should considered.

3.3.4 Uncertainty Consideration in a RMTS Program

Item 1: add the following sentence after the last sentence:

Key sources of uncertainty and key assumptions of the US-APWR DCD PRA documented in US-APWR DCD Chapter 19, Table 19.1-38 should be reviewed. Uncertainty associated with the lack of operating experience and lack of reliability data on innovative designs should considered.

4.1 PRA Attributes

Replace the first sentence of the last paragraph with:

The PRA model attributes and technical adequacy requirements for RMTS applications must be consistent and compatible with the NRC-endorsed consensus standards on PRA and updates to RG 1.200 in effect one year prior to initial fuel load.

2.2 NEI 04-10, Revision 1, "Risk-Informed Method for Control of Surveillance Frequencies"

NEI 04-10, Revision 1, "Risk-Informed Method for Control of Surveillance Frequencies" is incorporated by reference into this methodology with the following revisions. These revisions serve to modify NEI 04-10 to make it applicable to CPNPP. These modifications are necessary because NEI 04-10 was prepared for operating plants with an OL and CPNPP is a new plant with a COL. This section of the methodology is considered to be the basis for a future addendum to NEI 04-10.

General

NEI 04-10 relies on several other documents including Regulatory Guides 1.174 and 1.177. SRM-SECY-10-0121 states:

> The Commission reaffirms that the existing safety goals, safety performance expectations, subsidiary risk goals and associated risk guidance (such as the Commission's 2008 Advanced Reactor Policy Statement and Regulatory Guide 1.174), key principles and quantitative metrics for implementing risk-informed decision making, are sufficient for new plants.

CPNPP proposes to use the aspects of these documents as described in NEI 04-10 and the addendum below.

4.0 SURVEILLANCE FREQUENCY CONTROL PROGRAM CHANGE PROCESS

Step 5: replace the last sentence of the third paragraph with the following sentence:

> The identified "Gaps" to Capability Category II requirements from the endorsed PRA standards in the RG one year prior to initial fuel load, the key sources of uncertainty identified in the US-APWR DCD Chapter 19, Table 19.1-38, and the sources of uncertainty associated with lack of operational experience and lack of reliability data on innovative designs will all serve as inputs to identifying appropriate sensitivity cases in Step 14 below.

3.0 Programs

3.1 CRMP Description

The CRMP must be implemented before the requirements of TS 5.5.18 may be applied to any TS. The program must comply with the methodology provided in TS 5.5.18, including NEI 06-09, per the discussion in Section 2.1. The program has the following basic characteristics:

- The basic elements of the program are contained in an approved CPNPP procedure.
- The program identifies the departments of the CPNPP organization that have actions or responsibilities with respect to the program.
- The program delineates who has each of the designated responsibilities.
- The program identifies the training requirements for the members of the organization assigned actions or responsibilities per the program.
- The program and the supporting PRA (see Section 3.3) matches the as-built plant and is updated to the extent necessary to assess the combined risk of the unit in its current and projected configurations.
- The risk metrics used in the program (see Section 3.3) meet NRC approved guidance.
- The supporting PRA meets the description provided in Section 3.3.
- The program states how the PRA is modified to support the CRMP.
- The program procedure fully describes the CRM tool to be used.

3.2 SFCP Description

The SFCP must be implemented before the requirements of TS 5.5.19 may be applied to any TS. The program must comply with the methodology provided in TS 5.5.19, including NEI 04-10, per the discussion in Section 2.2. The program has the following basic characteristics:

- The basic elements of the program are contained in an approved CPNPP procedure

- The program identifies the departments of the CPNPP organization that have actions or responsibilities with respect to the program.
- The program delineates who has each of the designated responsibilities.
- The program identifies the training requirements for the members of the organization assigned actions or responsibilities per the program.
- The program and the supporting PRA (see Section 3.3) matches the as-built plant and is updated to the extent necessary to assess the combined risk of the unit in its current and projected configurations.
- The risk metrics used in the program (see Section 3.3) meet NRC approved guidance.
- The supporting PRA meets the description provided in Section 3.3.
- The program states how the PRA is modified to support SFCP.

3.3 PRA Support

Both the CRMP and the SFCP are supported by appropriate PRA models. The PRA models are described in sufficient detail to allow issuance of the COLs for CPNPP Units 3 and 4 and to allow continued implementation of these programs during operations. The supporting PRA will have the following essential elements:

- Numerous documents are used to describe the PRA models being used. The three primary documents are Regulatory Guide 1.200 and NEI 06-09 and NEI 04-10 as incorporated in Section 2.0.
- The PRA scope will envelope all the system, structures and components covered by the TS to which the programs apply. The PRA will comply with 10 CFR 50.71(h) which will assure that this scope requirement is met.
- The PRA developed for the DCD and COLA will be updated and upgraded to meet the PRA quality required for these programs according to the NRC-endorsed standards effective one year prior to initial fuel load. PRA insights, such as key assumptions and uncertainties summarized in the US-APWR DCD, will be addressed in the program.
- The PRA will undergo a peer review against Capability Category 2 for the supporting requirements of NRC-endorsed consensus standards on PRA per 10

CFR 50.71 (h) and Regulatory Guide 1.200 in effect one year prior to initial fuel load. The peer review will specifically examine the capability of the PRA to implement these RITS programs. All findings from the peer review will be considered and dispositioned.

- The PRA will rely upon the experience from units of similar design for uncertainties due to operator actions. The PRA will also rely heavily upon experience from operating US plants because the US-APWR design has not been operated prior to the issuance of a COL for CPNPP Units 3 and 4. Experience from operating Japanese PWRs will also be used if applicable. Uncertainties associated with the lack of operating experience that impact reliability will be identified.

- For components that are new to the US-APWR design (e.g., the Advanced Accumulators and the Gas Turbine Generators), the PRA will rely on experience data for equipment of similar design wherever used in the nuclear and non-nuclear industry, with consideration of features of the new design. The peer review will include an assessment of the validity of the data applied.

- Model translation from the approved PRA to a CRM tool will be traceable. Quality assurance checks of the model and quantification results translation from the approved PRA model will be performed to validate the model translation.

4.0 Risk Metrics

One aspect of these programs was uncertain when Luminant applied for COLs for CPNPP Units 3 and 4. This aspect was the risk metrics to be applied. Risk Metrics are the values for various risk parameters used to make decisions and are contained in several regulatory guides (e.g., RG 1.174 and RG 1.177). The thresholds and limits in such guidance are based upon the base risk associated with the nuclear plants that were operating at the time. The new plants applying for licenses in the same time frame as CPNPP Units 3 and 4 have base risk values assessed to be lower than the operating plants. Studies were performed to determine how to ensure that risk metrics did not erode the enhanced safety of the new plants while not creating a disincentive to design safer plants.

SRM-SECY-10-0121 states that the commission supports the use of existing risk guidance to new plants:

> The Commission reaffirms that the existing safety goals, safety performance expectations, subsidiary risk goals and associated risk guidance (such as the Commission's 2008 Advanced Reactor Policy Statement and Regulatory Guide 1.174), key principles and quantitative metrics for implementing risk-informed decision making, are sufficient for new plants. Because new plant designs incorporate operating experience from current generation reactors, severe accident research, and risk insights from design probabilistic risk assessments, the Commission expects that the advanced technologies incorporated in new reactors will result in enhanced margins of safety. However, the Commission continues to expect (consistent with the 2008 Advanced Reactor Policy Statement), as a minimum, at least the same degree of protection of the public and the environment that is required for current-generation light water reactors. New reactors with these enhanced margins and safety features should have greater operational flexibility than current reactors. This flexibility will provide for a more efficient use of NRC resources and allow a fuller focus on issues of true safety significance.

The US-APWR TS adopt a three-train limiting condition for operation for the N+2 designed four train safety systems. In the TS, risk-informed completion times are applied only to the second train that is declared inoperable. Deterministic completion times are applied for the third and fourth train declared inoperable. This feature of the US-APWR TS ensures the risk-informed completion times are applied for conditions where the functionality of the system has been lost. Thus, by limiting the scope in which risk-informed completion times are applied, implementation of a risk-informed completion time does not result in degradation of functionality of safety systems inherent to the US-APWR design. When considering this feature of the US-APWR technical specifications, it can be anticipated that the use of existing risk metrics will ensure at least the same

degree of protection of the public and the environment that is required for current-generation light water reactors, as expected by the Commission.

Application of a SFCP may affect the reliability of equipment but will not affect functionality of the safety features or degradation of the enhanced safety of the plant. The numerical risk changes will be strictly controlled using the existing risk metrics which have been determined to be applicable to new plants. The use of an SFCP will not result in significant degradation to enhanced margins of safety of the US-APWR design.