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January 27, 2011

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 NO. 5203  
(SECTION 13.6.1)

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein the response to Request for Additional Information (RAI) No. 5203 (CP RAI #194) for the Combined License Application for Comanche Peak Nuclear Power Plant Units 3 and 4. The RAI involves physical security.

Should you have any questions regarding this 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 January 27, 2011.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

Attachment: Response to Request for Additional Information No. 5203 (CP RAI #194)

D090  
NRO

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

**RAI NO.: 5203 (CP RAI #194)**

**SRP SECTION: 13.06.01 - Physical Security - Combined License**

**QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)**

**DATE OF RAI ISSUE: 12/13/2010**

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**QUESTION NO.: 13.06.01-52**

**(U)** Part 2, FSAR, Section 13.6 Security (Pages 13.6-1 to 13.6-4), MHI Technical Report (TR) UAP-SGI-08002, "US-APWR Technical Report – High Assurance Evaluation Assessment," Revision 2, dated October 2010, Section 4.4.2 to 4.4.8 (Pages 15 – 30): Confirm whether the revision of MHI TR UAP-SGI-08002 provides the following information on the management process and analysis results that identified target sets groups (TSG), based on the standard US-APWR design and site specific conditions:

- a. **(U)** Provide the technical bases for applying the criteria of greater than 8-hours as a threshold for core damage or the loss of spent fuel pool cooling in selecting TSG identified in Table 4.1. Justify how this technical report meets the requirement of 10 CFR 73.55(b)(3) that the physical protection program must be designed to prevent significant core damage and spent fuel sabotage. This regulation does not establish constraints based on duration to core damage and excluded TSG, which would be unprotected to prevent the adversaries capabilities of the design basis threat (DBT) to initiate the sequence of events for radiological sabotage.
- b. **(U)** Clearly describe the site specific assumptions and capabilities credited (e.g., operator actions for security and safety, emergency response, etc.) and their reliability and availability for providing security for plant operations personnel to prevent the sequences of each TSG, that applied the threshold of greater than 8 hours in Table 4.1.
- c. **(U)** Describe how defense-in-depth is provided to address uncertainties associated with the integrated safety and security responses to achieve a high assurance of protection that prevents the DBT of radiological sabotage from achieving core damage.
- d. **(U)** Clarify whether the proposed physical protection system (i.e., detection, assessment, communications, delays and interdiction) includes protection of each TSG identified, including those identified as greater than 8-hour threshold to core damage. The response to this question should demonstrate compliance with 10 CFR 73.55(b)(3) (i.e., prevent core damage and spent fuel sabotage with defense-in-depth).
- e. **(U)** Confirm whether the revision of MHI TR UAP-SGI-08002, Section 4.3.2 and Appendix A, Section 3.0 provides descriptions intended to address this issue identified and documented from NRC licensing site audit (NRC Audit Report dated October 5, 2010, ML101680301).

- f. **(U)** Describe how the target set identification process and results addressed credible operator actions during security events (e.g., hostile environment, uncertainties, etc.), evaluation of main steam system functions, considerations of cables and instrumentation and controls, considerations of common equipment, and selected initiating events that potentially cause multiple loss of safety-functions or target set elements in identifying a complete and accurate list of target sets.
- g. **(U)** Confirm whether the revision of MHI TR UAP-SGI-08002, Table 4.1, Sections 4.4.3, 4.4.4, 4.4.6, 4.4.7, 4.6, 4.7, and Tables 4-6 and 4-7 provides descriptions intended to address this same issue identified from NRC licensing site audit (NRC Audit Report dated October 5, 2010, ML101680301).

**(U) Regulatory Basis:** Subpart C of Title 10 CFR Part 52, § 52.79(a)(35)(i), (ii), and (iv) requires that the Combined license (COL) applicant submit information in the COL application that discusses how the applicant will meet the requirements of 10 CFR 73 and describes the implementation of the physical security and safeguards contingency plans. Title 10 CFR 73.55(b)(3) requires the applicant design the physical protection program to prevent significant core damage and spent fuel sabotage with assurance of the capabilities to detect, assess, interdict, and neutralize the DBT, and maintain at all times such capabilities with defense-in-depth. Title 10 CFR 73.55(b)(4) requires the applicant to analyze and identify site specific conditions, including target sets, that may affect the specific measures needed to implement the requirements of 10 CFR 73 and account for conditions in the design of the physical protection program. Target sets must be complete and accurate to describe what must be protected for meeting performance requirements of Title 10 CFR 73.55(2), which requires protection against the DBT of radiological sabotage as stated in § 73.1.

The COL applicant incorporated by reference MHI TR UAP-SGI-08002, "High Assurance Evaluation Assessment," Revision 2, that identifies the standard target sets based on the US-APWR design for the COL applicant. The technical report identified TSGs, including an application of an 8-hour threshold on the durations to core damage and loss of spent fuel pool cooling, without providing the technical bases on how this impacts the assurance of adequate protection against the DBT for radiological sabotage, the requirements for the design of the physical protection program, and prevents the occurrence of radiological sabotage. Additional information is needed to clarify how operator actions are credited, in the technical bases, for applying the 8-hour threshold and providing high assurance of protection against core damage and spent fuel sabotage (i.e., if the TSG is not selected) and how the plant will provide security for the environment to allow mitigating actions as are provided for defense-in-depth. The proposed approach of excluding identified TSG based on a time criteria to core damage exceeding greater than 8 hours adds additional constraints to core damage not allowed by the regulatory requirement 10 CFR 73.55(b)(3). The applicant's decision to exclude TSG identified, as not considered to be protected against the DBT, does not provide a high assurance of protection against the DBT for radiological sabotage.

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**ANSWER:**

- a. The requested technical bases are provided in Appendix A to UAP-SGI-08002, Revision 2, dated October 2010. Section 3.2 describes the primary actions necessary to re-establish and maintain critical plant functions within eight hours.
- b. The requested information is discussed in Sections 3.1 through 3.4 of Appendix A to UAP-SGI-08002, Revision 2.
- c. Defense-in-depth is discussed in Section 4.4.
- d. UAP-SGI-08002, Section 4.3.1, Item 6, states that safety-related equipment, including associated piping and cable, is located within standard plant vital areas. Protection of the standard plant vital areas includes protection of the equipment comprising the standard plant target set groups. The

standard plant vital areas are protected with a defense-in-depth approach as described in UAP-SGI-08002, Revision 2, to comply with 10 CFR 73.55(b)(3).

- e. UAP-SGI-08002, Section 4.3.2, and Appendix A, Section 3.0, addresses the applicable issues in Item #2 of the NRC Audit Report.
- f. UAP-SGI-08002, Section 4.0, describes the target set identification process including the identification of operator actions. For the purposes of the evaluation, only those operator actions taken in the main control room are credited. Credited operator actions are identified in Tables 4-2 through 4-4 and Table 4-7. The main steam system functions are discussed in Sections 4.4.3 through 4.4.6. Considerations of cables and other components are discussed in Section 4.6. Common points of vulnerability are discussed in Appendix A, Section 3.4. The initiating events are identified in Table 4-1 (Shutdown Matrix).
- g. UAP-SGI-08002, Sections 4.4.3 through 4.4.6, 4.6, Tables 4-2 through 4-4, Table 4-7 and Appendix A, Section 3.4, address the applicable issues in Item #2 of the NRC Audit Report. Section 4.7 does not concern Audit Report Item #2 and Table 4-6 shows non-credited operator actions.

Impact on R-COLA

None.

Impact on S-COLA

None; the responses are site-specific.

Impact on DCD

None.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

**RAI NO.: 5203 (CP RAI #194)**

**SRP SECTION: 13.06.01 - Physical Security - Combined License**

**QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)**

**DATE OF RAI ISSUE: 12/13/2010**

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**QUESTION NO.: 13.06.01-53**

(U) Part 2, FSAR, Section 13.6.2.1 (Page 13.6-2), MHI TR UAP-SGI-08002, "US-APWR Technical Report - High Assurance Evaluation Assessment," Revision 1, Section 5.2, Physical Security Design Features and Systems (Page 32), Part 8, Physical Security Plan, Section 11.2.3 (Page 11) and Section 5.1 and 5.2, US-APWR Standard Plant Design Features and Penetrations through Standard Plant Vital Area Walls (Pages 29-33): Provide the following information below on the docket.

- a. **(U)** Describe how the blast analyses performed in (MHI UAP-SGI-10001, "Blast Analysis for the Standard Plant," UAP-SGI-10002, "Large Blast Analysis for the Comanche Peak Units 3 and 4," and/or UAP-SGI-10003, "Small Blast Analysis for the Comanche Peak Units 3 and 4") considered the blast effects on non-structural elements (e.g., doors, windows, equipment hatches, missile doors, or other penetrations) and addressed the potential blast effects on vital equipment and elements of target sets from DBT vehicle bomb threats. Provide summary, key assumptions, and results from analyses of the blast effect on non-structural elements. Clarify whether the effects are also acceptable for elements of all TSGs identified (selected and not selected) in UAP-SGI-08002. Note: Revision to MHI TR UAP-SGI-08002 did not appear to provide descriptions intended to address this subject.
- b. **(U)** In addition, describe how these analyses also bound the DBT waterborne explosive threats to support the conclusions in Section 11.2.3, Waterborne Threat Measures, of the Physical Security Plan (i.e., Part 8 of the COLA) that the explosives effects are acceptable for vital equipment to perform its intended functions. Otherwise, state clearly whether the planned plant location from waterways precludes the need to consider waterborne threat.
- c. **(U)** Re-evaluate analyses in UAP-SGI-10004, "Comparison of the PS/B Wall to Sandia Report SAND77-0777, to include available methods for applying hand carried explosives within the adversarial characteristics, that will ensure the credited delay times provided by walls and structural members of the nuclear island are bounding. Confirm whether the revision in MHI TR UAP-SGI-08002, Section 5.1 provides descriptions intended to address this issue identified from the NRC licensing site audit (NRC Audit Report dated October 5, 2010).

**(U) Regulatory Basis:** Subpart C of Title 10 CFR Part 52, § 52.79(a)(35)(i), (ii), and (iv) requires that the Combined license (COL) applicant submit information in the COL application that discusses how the

applicant will meet the requirements of 10 CFR 73 and describes the implementation of the physical security and safeguards contingency plans. Title 10 CFR 73.55(2) requires protection against the DBT of radiological sabotage, as stated in § 73.1. Title 10 CFR 73.55(b)(3)(i) requires the applicant to ensure that the capabilities to detect, assess, interdict, and neutralize the DBT are maintained at all times. Title 10 CFR 73.55(3)(ii) and 73.55(b)(4) requires applicant to provide defense-in-depth and to analyze and identify site specific conditions, including target sets, that may affect the specific measures needed to implement the requirements of 10 CFR 73 and account for conditions in the design of the physical protection program.

(U) The blast analyses for the standard plant supports the minimum safe stand-off distances indicated in MHI TR UAP-SGI-08002, and it is incorporated by reference to provide the design and licensing bases for the physical protection features that will guard against the DBT vehicle explosive threats. The applicant referenced MHI technical reports UAP-SGI-10001, "Blast Analysis for the Standard Plant," UAP-SGI-10002, "Large Blast Analysis for the Comanche Peak Units 3 and 4," Revision 1, and UAP-SGI-10003, "Small Blast Analysis for the Comanche Peak Units 3 and 4," Revision 0, that documents the analyses of vehicle bomb threats. The blast analyses did not address blast effects on non-structural elements. Also, the staff identified that the waterborne bomb threats has not been analyzed or documented to support the conclusion in Part 8, Section 11.2.3 of the Physical Security Plan in Part 8 of the COLA.

(U) The evaluations documented in UAP-SGI-10004 did not adequately bound or consider available methods (e.g., use of shape and cutting explosive charges) that could reduce time required to defeat physical barriers provided by structural members of the nuclear island. Reasonable and conservative assumptions are needed for delay times provided by structural members in the design and licensing bases of a physical protection system that provides a high assurance of protection. This RAI addresses the technical subjects reviewed and issues identified in NRC licensing audit conducted on May 10-13, 2010 (Audit summary is documented in ML101680301).

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**ANSWER:**

- a. Technical Reports UAP-SGI-10001, UAP-SGI-10002 and UAP-SGI-10003 have been revised to provide the requested information. UAP-SGI-10001 addresses non-structural elements and potential effects for the postulated and analyzed vehicle bomb threats using the methodology from NUREG 6190. The analysis of non-structural elements in UAP-SGI-10001 shows that the effect on standard plant vital equipment and standard plant target sets are acceptable. UAP-SGI-10002 deleted the discussion on the dimensional vulnerability model.
- b. UAP-SGI-10003 addresses the waterborne threat.
- c. UAP-SGI-10004 has been superseded by UAP-SGI-10005 to provide the requested information. UAP-SGI-08002, Section 5.1.2, addresses hand-carried explosives used against structural walls as identified in the NRC audit.

Impact on R-COLA

None.

Impact on S-COLA

None; the responses are site-specific.

Impact on DCD

None.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

**RAI NO.: 5203 (CP RAI #194)**

**SRP SECTION: 13.06.01 - Physical Security - Combined License**

**QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)**

**DATE OF RAI ISSUE: 12/13/2010**

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**QUESTION NO.: 13.06.01-54**

**(U) Design Bases for Physical Protection Systems within the Scope of the RCOLA:** Confirm whether the revision of MHI TR UAP-SGI-08002, Sections 5.1.2, 5.1.3, 5.2.1, 5.2.2, 5.2.4.1, 5.2.5, 5.2.6, 5.3, and Appendix A, Sections 2.2.1, 2.2.2, 2.2.3, 2.2.4, and 2.2.6 provides descriptions intended to address the following issue identified and documented from NRC licensing site audit (NRC Audit Report dated October 5, 2010, ML101680301):

Describe the design and performance requirements, including configurations and interfacing systems, for physical protection systems (e.g., access controls, interior and exterior intrusion detection and assessment system design and interface, configuration of protected area delay and detection and VBS, etc.) in sufficient detail to allow detailed designs that incorporates the performance requirements and intended functions credited as design and licensing bases for meeting performance and prescriptive requirements of 10 CFR 73.

**(U) Regulatory Basis:** Subpart C of Title 10 CFR Part 52, § 52.79(a)(35)(i), (ii), and (iv) requires that the Combined license (COL) applicant submit information in the COL application that discusses how the applicant will meet the requirements of 10 CFR 73 and describes the implementation of the physical security plan and safeguards contingency plan. Title 10 CFR 73.55(2) requires protection against the DBT of radiological sabotage as stated in § 73.1. Title 10 CFR 73.55(b)(3)(i) requires applicant to ensure that the capabilities to detect, assess, interdict, and neutralize the DBT and maintain at all time such capabilities. Title 10 CFR 73.55(3)(ii) and 73.55(b)(4) require applicant to provide defense-in-depth, and to analyze and identify site specific conditions, including target sets, that may affect the specific measures needed to implement the requirements of 10 CFR 73 and account for conditions in the design of the physical protection program. Title 10 CFR 52.80(a) requires the application to contain information for ITA and criteria necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations.

**(U) During the licensing audit conducted May 10-13, 2010 (Audit summary is documented in ML101680301), the staff reviewed supporting documents on the design of physical protection systems (i.e., intrusion detection, Protected Area (PA) camera and video, PA fence and nuisance fence, security access control, security communications, security computer, security lighting, security power, vehicle barrier system). The NRC staff noted that these documents contained details of design bases for the**

physical protection systems, including references to industry standards or guidance (e.g., IEEE, NFPA, GSA, etc) for the physical protection systems described in the COLA (and DC). However, the applicant has not submitted sufficient and appropriate details of designs, configurations, and interfacing systems for physical protection systems (e.g., access controls, interior and exterior intrusion detection and assessment system design and interface, configuration of protected area delay and detection and VBS, etc.) on the docket. The information on design and intended functions or performances and the reliability and availability of a physical protection system to protect against the DBT is required on the docket for demonstrating or supporting the applicant's conclusion of a high assurance of adequate protection against the DBT for radiological sabotage. The level of detail for the design (including locations, configurations, and interfaces) of physical protection systems should conform to guidance in Regulatory Guide 1.206. Design and performance requirements must be in sufficient detail to establish acceptance criteria for verification through ITA. The applicant's plan to provide supplemental information addresses the level of detail in MHI TR UAP-SGI-08002 or Part 8 site specific information. This RAI addresses the technical subject reviewed and issues identified during the licensing audit conducted on May 10-13, 2010 (Audit summary is documented in ML101680301).

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**ANSWER:**

The applicable sections of UAP-SGI-08002 and Appendix A have been revised to address Issue #5 identified during the NRC site audit.

Impact on R-COLA

None.

Impact on S-COLA

None; the responses are site specific.

Impact on DCD

None.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

**RAI NO.: 5203 (CP RAI #194)**

**SRP SECTION: 13.06.01 - Physical Security - Combined License**

**QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)**

**DATE OF RAI ISSUE: 12/13/2010**

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**QUESTION NO.: 13.06.01-55**

**(U) Defense-in-Depth of Physical Protection System (Delays and Response):** Confirm whether the revision of MHI TR UAP-SGI-08002, Sections 6.1, 6.2, Figures 8-5 and 8-5, Figure A2 through A2-13, Figures S-3-1 through S-5A-3 (Scenarios 3 through 5A), and Appendix A Sections 1.0, 2.0, 4.0, 5.0 and Scenario 1 through 9, including 4A and 5A, provides descriptions and information on the docket that addresses the following issue identified during the NRC licensing site audit (NRC Audit Report dated October 5, 2010, ML101680301):

- a. **(U)** Describe defense-in-depth for security response (internal and/or external) by addressing uncertainties and additional pathways not currently considered in postulated pathways and scenarios. Specifically, evaluate and describe the defense-in-depth protection that includes pathways (and scenarios) which bounds explosive breaching of structural walls or other penetrations and ascending/descending available internal or external vertical pathways (e.g., ventilation ducts, utility/maintenance tunnels, and elevator shafts, etc.), that are other than normally access pathways (i.e., doorways and stairs) to provide assurance that the internal and external security responses planned will provide the defense-in-depth protection that reasonably bounds all credible pathways within the DBT adversarial characteristics and capabilities.
- b. **(U)** Analyze fully and document the defense-in-depth protection for the reliability and availability of opportunities for security responders to interdict and neutralize adversaries to deny access at the nuclear island and structures along all credible pathways between PA and plant structures. Specifically address the pathways using a structure [intentionally not stated] between the PA and nuclear island that provides cover and concealment and a direct access to the exterior wall of a vital area containing safety functions and controls. Indicate how opportunities to interdict or neutralize adversaries will be integrated with physical protection systems into the current configuration for pre-deployed security responders described in Appendix A of UAP-SGI-08002, who will provide a physical protection system designed to achieve a high assurance of protection against the DBT.
- c. **(U)** Describe the engineered systems required and credited for detection, assessments, and proposed defensive positions (e.g., BRE or BBRE) to enable and provide opportunities for protected security responders to interdict and neutralize adversaries at the perimeter of the nuclear island and structures. Describe the reliability and availability of overlapping fields of fire to provide adequate coverage of pathways and the perimeter of the nuclear island and structures for

interdiction and neutralization of adversarial tasks (e.g., interrupt adversarial tasks explosive breach walls or penetrations, ascending of walls, etc.) or neutralization of adversaries. The response to this question should demonstrate a defense-in-depth in protection.

- d. **(U)** Describe the deployment of all armed responders and armed security officers described in Section 18, "Response Requirements," of the PSP (Page 28), Part 8 of the COL application. Provide information supporting the planned deployment of responders for a high assurance of protection in the representations of protection for the CPNPP, Units 3 and 4 found in Appendix A of UAP-SGI-080002. Describe the integration of engineered physical protection systems provided to protect responders, including delays of adversaries by design, and opportunities to interdict and neutralize adversaries. Describe clearly the technical bases for how the numbers of responders indicated in Section 18 provides adequate protection and defense-in-depth.
- e. **(U)** Describe how task times (initiation of alarm, assessment of threat, and communications to sector or zone of intrusion, task time required to acquire target) and the available windows of opportunities to engage adversaries to demonstrate that the planned configuration of BRE/BBRE currently described in Appendix A provides the reliability and availability of security responders needed to interdict or neutralize adversaries between the PA and structures (i.e., prior to cover and concealment or loss of lines of sight). Describe the assumptions of reliability and availability of security responders to interdict or neutralize adversaries, based on: (1) assumptions of maximum distance of fire (indicated in UAP-SGI-080002), (2) analyzed response task times, (3) expected results from standard training and qualification and maintaining proficiency in use of weapons (i.e., Training and Qualification Plan – Part 8 of the COLA), (4) assumed adversarial travel time, and (5) the resulting windows of opportunities (time and lines of sight) for security responders from the BRE/BBRE configuration indicated in Appendix A of UAP-SGI-080002.

**(U) Regulatory Basis:** Subpart C of Title 10 CFR Part 52, § 52.79(a)(35)(i), (ii), and (iv) requires that the COL applicant submit information in the COL application that discusses how the COL applicant will meet the requirements of 10 CFR 73 and describes the implementation of the physical security plan and safeguards contingency plan. Title 10 CFR 73.55(2) requires protection against the DBT of radiological sabotage as stated in § 73.1. Title 10 CFR 73.55(b)(3)(i) requires applicant to ensure that the capabilities to detect, assess, interdict, and neutralize the DBT and maintain at all time such capabilities. Title 10 CFR 73.55(3)(ii) and 73.55(b)(4) requires applicant to provide defense-in-depth, and to analyze and identify site specific conditions, including target sets, that may affect the specific measures needed to implement the requirements of 10 CFR 73 and account for conditions in the design of the physical protection program. Title 10 CFR 52.80(a) requires the application to contain information for ITA and criteria necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the combined license, the provisions of the Atomic Energy Act, and the Commission's rules and regulations.

**(U)** During the licensing audit conducted May 10-13, 2010 (Audit summary is documented in ML10168030), the staff noted that the planned internal response (e.g., initial response and plans for re-deployment) and design of engineered delays and barriers within the nuclear island was reasonably well planned and described based on locations of target sets for core damage of the US-APWR standard design and the postulated pathways and scenarios analyzed. However, the staff identified the following issues: (a) the defense-in-depth of response (internal and/or external) did not consider or address uncertainties outside of the postulated pathways and scenarios analyzed. The analyses did not consider pathways and scenarios that include explosive breaching of structural walls or other penetrations and ascending/descending available internal or external horizontal or vertical pathways (e.g., walls, ventilation ducts, utility/maintenance tunnels, and elevator shafts) that are other than normal access pathways. Also, the analyses did not reasonably bound all credible scenarios within the DBT adversarial characteristics and capabilities; (b) the defense-in-depth or layered protection for the reliability and availability for security responders to interdict to deny access at the nuclear island and structures has not been fully analyzed and/or documented for all credible pathways and scenarios; (c) the descriptions of engineered systems required and credited for detection, assessments, and proposed defensive positions (or

BRE/BBRE) to enable and provide opportunities for protected security responders with overlapping fields of fire for reliability and availability of interdictions at the boundaries of the nuclear island and structures are not documented for a layered protection; and (d) the plans for deploying armed security officers, along with required engineered physical protection system to interdict adversaries, has not adequately described its reliability and availability in the information currently on the docket. The current information provided on the docket does not support the applicant's conclusions that the representation of security posture described in the COLA adequately addressed defense-in-depth or provide a high assurance of adequate protection against the DBT for radiological sabotage.

(U) The staff also noted that the applicant applied NEI 05-05 guidance for force-on-force exercise as licensing assumptions for the capabilities of security responders to acquire and neutralize moving target under naturally occurring or adversaries initiated environmental conditions, for the maximum distance indicated in Appendix A of MHI UAP-SGI-08002. The assumptions require a high standard for initial training and qualification and continued training by security responders to maintain proficiency with weapons to perform in accordance assumptions of NEI 05-05, and must address and these uncertainties in the defense-in-depth evaluation.

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**ANSWER:**

- a. The internal and external strategies have been revised to address uncertainties and additional pathways which bound explosive breaching of structural walls and roofs. New scenarios have been added to demonstrate the ability to defend against such pathways. The external strategy provides overlapping fields of fire on external walls of the plant providing assurance that adversaries attempting to scale walls and access HVAC penetrations will be interdicted before reaching such penetrations. Furthermore, all external penetrations are protected with steel grating.
- b. The external strategy is revised to address the field of fire for the protected area. An additional BBRE has been added to the perimeter and several BBREs are relocated to provide maximum coverage and overlapping fields of fire on the external walls of the power block. Armed security officers (ASOs) performing patrols and other security duties can be deployed by the response force leader to respond to a security event. Also, some ASOs may have designated initial positions to which they proceed upon confirmation of a security event. The capability to deploy ASOs as needed provides flexibility and defense-in-depth to the protective strategy.
- c. The proposed locations of the external BBREs as well as their monitoring and assessment capabilities and overlapping lines-of sight (fields-of-fire) are discussed in UAP-SGI-08002, Appendix A, Section 2.2.4. The defense-in-depth concept is described in Appendix A, Section 4.4
- d. The deployment of armed responders (ARs) is discussed in UAP-SGI-08002, Appendix A, Section 6.0. This deployment focuses on the ARs which are identified in the PSP for CPNPP Units 3 and 4 as those responders located in the protected area who are immediately available to respond and implement the protective strategy and cannot be assigned to any other duty. Based on the scenarios, the minimum number of ARs required to defend the plant against the DBT is established. The deployment of ASOs is discussed in various sections of Appendix A and in the PSP which identify this group of security officers as available to be deployed as needed at the discretion of the response force leader. Furthermore, Appendix A, Section 7.0, identifies the scenarios in which ASOs are deployed to specific areas in response to a security event. Based on the scenarios provided in Appendix A, the ARs identified in the PSP are provided with engineered physical protection systems such as BBREs, communications and hardened defensive positions sufficient to defend against the DBT. The number of ASOs provides defense-in-depth to the protective strategy. Section 4.4 provides discussion on defense-in-depth and the integration of engineered physical protection systems with the ARs and the ASOs.

- e. UAP-SGI-08002, Revision 2 provides the location and number of external BBREs that are on the perimeter of the protected area boundary. The BBRE capabilities along with monitoring and assessment capabilities are described in Appendix A, Section 2.2.4 and their locations are shown on Figure A1. The intrusion detection system is described in Appendix A, Section 2.2.3. For the purpose of this TR, the initiation of alarm is assumed when the protected area perimeter fence is breached. This perimeter fence is under constant observation by officers in the continually-manned BBREs.

The assumptions of reliability and availability of security responders to interdict or neutralize adversaries are justified based on the following:

- The maximum distance of fire is based on the operating units training requirements and as described in Section 2.3.2 and industry standards as described in Section 2.2.4 of Appendix A.
- The response task times are derived from Sandia Report SAND2001-2168 and industry experience. Assumptions for task times are discussed in Section 5.4 of Appendix A. The assumptions are listed in Table 6-1 of Appendix A.
- Based on the conservative assumptions identified in Appendix A, Section 5.6, in favor of the adversary, the expected results from standard training and qualification and maintaining proficiency in use of weapons the armed security force would exceed the expectations established in the report.
- The adversarial travel time is conservatively established for this report. Assumptions for task times are discussed in Section 5.4 of Appendix A. The assumptions are listed in Table 6-1 of Appendix A.
- Figures A-2 provides the overlapping fields of fire for the BBREs along the protected area perimeter fence.

Impact on R-COLA

None.

Impact on S-COLA

None; the responses are site-specific.

Impact on DCD

None.

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

**RAI NO.: 5203 (CP RAI #194)**

**SRP SECTION: 13.06.01 - Physical Security - Combined License**

**QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)**

**DATE OF RAI ISSUE: 12/13/2010**

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**QUESTION NO.: 13.06.01-56**

**(U) Part 2, FSAR Chapter 1.0, Section 1.9(1) Conformance with Regulatory Guide (Page 1.9-3):** Identify Division 5 regulatory guidance that will be applied to meet regulatory requirements of 10 CFR 73 in Table 1.9 (e.g., RG 5.7, 5.44, 5.66, 5.69, 5.75, 5.76, etc.).

**(U)Regulatory Basis:** Subpart C of Title 10 CFR Part 52, § 52.79(a)(35)(i), (ii), and (iv) requires that the COL applicant submit information in the COL application that discusses how the COL applicant will meet the requirements of 10 CFR 73 and describes the implementation of the physical security plan and safeguards contingency plan. Title 10 CFR 73.55(b)(3)(i) requires applicant to ensure that the capabilities to detect, assess, interdict, and neutralize the DBT are maintained at all times. Regulatory guide (RG) 1.206 provides guidance on the format and content for COL applications, whose conformance, provides an acceptable method for meeting requirements of content of application. RG 5.69 provides detail descriptions for adversarial characteristics for the DBT that the applicant must protect with high assurance to meet performance requirements of 10 CFR 73.55(b). Other Division 5 regulatory guides, as referenced by the applicant, provides methods in whole or parts to meet requirements of 10 CFR 73, and are identified in security specific sections of the COL (Part 2 and Part 8). For completeness and accuracy, appropriate Division 5 regulatory guides should be identified in Section 1.9, along with other regulatory guides. RG 1.206 provides a method for meeting requirements for 10 CFR 52.77, "Content of applications; general information."

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**ANSWER:**

The requested information has been added to the FSAR with a revision to Section 1.9.1 and the addition of a new table (Table 1.9-221). RG 5.75 and RG 5.76 are not added to Table 1.9-221 because they were not in effect 6 months prior to COLA submittal (Sept. 2008) as identified in RG 1.206, Section C.I.1.9.1. Although not required by RG 1.206 to be addressed in the FSAR, RG 5.75 has been considered in the development of security personnel qualification and training programs and RG 5.76 (SGI) has been considered in the development of the physical security program.

**Impact on R-COLA**

See marked-up FSAR Revision 1 page 1.9-1 and new FSAR Table 1.9-221.

Impact on S-COLA

This question applies to the S-COLA.

Impact on DCD

None.

**Comanche Peak Nuclear Power Plant, Units 3 & 4  
COL Application  
Part 2, FSAR**

**1.9 CONFORMANCE WITH REGULATORY CRITERIA**

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

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CP COL 1.9(1) Replace the last paragraph of DCD Section 1.9 with the following.

Subsection 1.9.1 discusses the conformance with regulatory guides for the operational aspects and portions of the facility design that are not included in the DCD. RCOL2\_14.0  
2-18

Subsections 1.9.2 and 1.9.3 address an evaluation for the Standard Review Plan (SRP) revision and generic issues which are identified in the revision of NUREG-0933 in effect six months before the docketing date of the application. This evaluation contains the operational aspect and portions of the facility design that are not included in the DCD. The additional status for the Three Miles Island (TMI) requirements is also included in Subsection 1.9.3.

Subsection 1.9.4 provides the evaluation for the generic communications (i.e., generic letters and bulletins) and Japanese pressurized-water reactors (PWRs) operating experience. These experiences are evaluated up to six months before the submittal date of the COLA.

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**1.9.1 Conformance with Regulatory Guides**

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CP COL 1.9(1) Add the following paragraphs at the end of DCD Subsection 1.9.1.

For the portions of the CPNPP Units 3 and 4 operational aspects and design that are not included in the referenced certified design, Tables 1.9-201 through 1.9-203 and 1.9-221 address conformance with regulatory guides in effect in March 2008, i.e., six months before COLA submittal. Each table provides an evaluation of conformance with a group of regulatory guides, as applicable for the required RG divisions. The tables show the RG numbers, titles, status, revision: chapter, section and subsection of the FSAR that corresponds to the particular RGs. RCOL2\_14.0  
2-18  
RCOL2\_13.0  
6.01-56

The status of each item is reported as "Conformance", "Conformance with exceptions", or "Not applicable".

Division 4 of the RGs applies to the Environmental Report, and those topics are addressed in the COLA Part 3. Table 1.9-202 provides an additional evaluation of conformance with Division 4 of the RGs as applicable to the content of this FSAR.

**Comanche Peak Nuclear Power Plant, Units 3 & 4  
COL Application  
Part 2, FSAR**

**Table 1.9-221**

RCOL2\_13.0  
6.01-56

**Comanche Peak Nuclear Power Plant Units 3 & 4 Conformance with Division 5 Regulatory Guides**

<u>RG Number</u>	<u>RG Title</u>	<u>Revision/Date</u>	<u>COLA FSAR Status</u>	<u>Corresponding Chapter/Section</u>
<u>5.7</u>	<u>Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas</u>	<u>Revision 1 May 1980</u>	<u>Conformance</u>	<u>13.6.2</u>
<u>5.12</u>	<u>General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material</u>	<u>Revision 0 November 1973</u>	<u>Conformance</u>	<u>13.6.2</u>
<u>5.44</u>	<u>Perimeter Intrusion Alarm Systems</u>	<u>Revision 3 October 1997</u>	<u>Conformance</u>	<u>13.6.2</u>
<u>5.65</u>	<u>Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls</u>	<u>Revision 0 September 1986</u>	<u>Conformance</u>	<u>13.6.2</u>
<u>5.66</u>	<u>Access Authorization Program for Nuclear Power Plants (Rev. 0, June 1991)</u>	<u>Revision 0 June 1991</u>	<u>Conformance</u>	<u>13.6.2</u>
<u>5.68</u>	<u>Protection Against Malevolent Use of Vehicles at Nuclear Power Plants</u>	<u>Revision 0 August 1994</u>	<u>Conformance</u>	<u>13.6.2</u>
<u>5.69</u>	<u>Guidance for the application of the radiological sabotage design-basis threat in the design, development, and implementation of a physical security program that meets 10 CFR 73.55 requirements.</u>	<u>Revision 0 August 2008</u>	<u>Conformance</u>	<u>13.6.2</u>