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CP-200800962
TXX-08105

July 24, 2008

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
COMANCHE PEAK LICENSING BASIS ON USE OF MANUAL ACTIONS
FOR FIRE PROTECTION

REFERENCE: NRC Inspection Report No. 50-445/08006; 50-446/08006 dated July 3, 2008.

Dear Sir or Madam:

Luminant Generation Company LLC (Luminant Power) has reviewed the NRC letter (Reference 1) concerning the NRC 2008 Triennial Fire Protection Inspection conducted at Comanche Peak. On page 9 of the enclosure it is stated that "...the staff has concluded that the NRC did not approve manual actions in lieu of protection for equipment required for safe shutdown. The licensee disagreed with the team's interpretation of the fire protection program requirements and believed the program complies with their license condition." This issue is being treated as an unresolved item: URI 05000445; 446/2008006-02, Unapproved Local Manual Actions For Hot Shutdown.

The attachment provides the Comanche Peak licensing basis on the use of manual actions as a means of ensuring that one train of systems necessary to achieve and maintain hot shutdown conditions is free of fire damage. Since before the licensing of Comanche Peak, the licensing basis for Comanche Peak allowed credit for manual actions to achieve and maintain safe shutdown. Additionally, these manual actions were reviewed and approved by the NRC in SSER 21. Therefore, Comanche Peak may use the manual actions identified in the CPSES Fire Protection Report (FPR) to achieve and maintain safe shutdown.

Luminant Power requests that the staff consider the attached information in the resolution of URI 05000445; 446/2008006-02.

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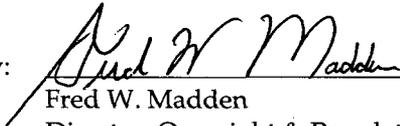
This communication contains no new licensing basis commitments regarding Comanche Peak.

If you have any questions regarding this request, please contact Jack Hicks at (254) 897-6725.

Sincerely,

Luminant Generation Company LLC

Mike Blevins

By: 
Fred W. Madden
Director, Oversight & Regulatory Affairs

Attachment

JCH

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COMANCHE PEAK LICENSING BASIS ON USE OF MANUAL ACTIONS FOR FIRE PROTECTION

1.0 Issue

This paper evaluates whether the licensing basis for Comanche Peak Units 1 and 2 allows the use of manual actions as a means of ensuring that one train of systems necessary to achieve and maintain hot shutdown conditions is free of fire damage.

2.0 Summary

When Comanche Peak was licensed, its post-fire safe shutdown methodology included operator manual actions. The Comanche Peak Steam Electric Station (CPSSES) Fire Protection Report (FPR), which was part of the operating license (OL) application and is therefore part of the licensing basis for Comanche Peak,¹ described operator manual actions to achieve and maintain safe shutdown in the event of a fire. Furthermore, the NRC Staff reviewed and approved the use of manual actions for Comanche Peak's post-fire safe shutdown methodology in NUREG-0797 Supplemental Safety Evaluation Report (SSER) 21, and NRC inspections also approved the use of manual actions.

3.0 Discussion

3.1 Regulatory Background

Section III.G.2 to Appendix R of 10 CFR Part 50 states that, where redundant trains of equipment needed to achieve and maintain hot shutdown are located in the same fire area, at least one redundant train must be protected to ensure that it is free of fire damage. This section lists several methods for providing such protection, but does not provide for the use of manual actions.

However, Appendix R only applies to plants licensed prior to 1979. Comanche Peak Units 1 and 2 received their operating licenses in 1990 and 1993, respectively. Therefore, Comanche Peak is not subject to the fire protection regulations in Appendix R.

NRC Regulatory Guide 1.189, Rev. 1, *Fire Protection for Nuclear Power Plants*, Section 5.3.3, Operator Manual Actions, states

If permitted by the plant license, plants that were licensed after January 1979 may credit operator manual actions for these areas [redundant systems located in the same fire area] if it can be shown that the use of the operator manual actions does not adversely affect safe shutdown.

¹ See letter TXX-89697 dated September 22, 1989, submitting Revision 3 of the CPSSES FPR and TXX-92327 dated July 31, 1992, submitting Revision 6 of the CPSSES FPR to the NRC.

Similarly, NRC Regulatory Issue Summary (RIS) 2006-10, *Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions* (June 30, 2006) provides guidance related to the use of manual actions to achieve and maintain safe shutdown. Section 2.4 pertains to plants licensed to operate on or after January 1, 1979, and states as follows:

Since plants licensed to operate on or after January 1, 1979 (post-1979 licensees), are not required to meet the requirements of paragraph III.G.2, a staff decision in an SER that approves the use manual operator actions does not require exemption under 10 CFR 50.12. Post-1979 licensees may be requested to demonstrate, as part of the NRC Reactor Oversight Process, that the use of an operator manual action would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire consistent with their license.

Thus, NRC guidance explicitly allows plants licensed after 1979 to rely upon manual actions to achieve and maintain safe shutdown, provided that the manual actions are identified in the plant's licensing basis and approved by the NRC.

A description of the Comanche Peak fire protection system is provided in Section 9.5.1 of the Final Safety Analysis Report (FSAR). In turn, this section refers to the CPSES FPR. The CPSES FPR describes manual actions to achieve and maintain safe shutdown. Use of manual actions was approved in SSER 21. Additionally, use of manual actions to achieve and maintain safe shutdown are discussed in various other documents on the Comanche Peak docket, including NRC inspection reports. Each of these is discussed below.

3.2 CPSES FSAR

As required by 10 CFR 50.34, Comanche Peak OL application included an FSAR. The FSAR is the principal licensing basis for a plant. See LIC-100, *Control of Licensing Bases for Operating Reactors*, Rev. 1 (Jan. 2004), Section 3.1.

FSAR 9.5.1.2.3, Amendment 101 dated February 1, 2007, states in part

9. Where redundant fire safe shutdown equipment cabling is located in the same fire area and is not separated by a three hour fire barrier or a horizontal distance of 20 feet with negligible intervening combustibles or fire hazard, one train of this cabling, if not one hour fire rated cable, will be enclosed by a one-hour fire barrier (or radiant energy shield inside containment) unless an alternate shutdown path is utilized *or justification for deviations are provided per reference [19] except as described in Section 9.5.1.6.1.* (Emphasis added).

Reference 19 is the CPSES FPR.

FSAR 9.5.1.2.3, Amendment 78 dated January 15, 1990, (which was in effect at time of Unit 1 OL) states in part

9. Where redundant fire safe shutdown equipment cabling is located in the same fire area and is not separated by a three hour fire barrier or a horizontal distance of 20 feet with negligible intervening combustibles or fire hazard, one train of this cabling will be enclosed by a one-hour fire barrier (or radiant energy shield inside containment) unless an alternate shutdown path is utilized or justification for deviations are provided per reference [19] except as described in Section 9.5.1.6.1.

FSAR 9.5.1.2.3, Amendment 87 dated December 18, 1992, (which was in effect at time of Unit 2 OL) has the same wording as in Amendment 101.

FSAR Section 9.5.1.6.1 provides a Comparison with Appendix A of Branch Technical Position APCSB 9.5-1 of Standard Review Plan 9.5.1. With respect to APCSB 9.5-1 Appendix A, Paragraph D.1.a (2), this section of the FSAR, Amendment 101 dated February 1, 2007, states:

CPSES Fire Protection Program

- (2)(a): Where redundant fire safe shutdown systems, required to bring the plant to a hot standby condition, are located within the same fire area and are subject to damage from a single fire hazard a Fire Hazards Analysis Evaluation demonstrates and documents compliance to that recommended in the guideline by protecting the function with one of the following:

For systems located both inside and outside the Containment Building, see FPR Section II (4.5), Reference [19].

Similarly, this same section of the FSAR in Revision 78, (January 18, 1990) and Revision 87, (December 18, 1992) commits to requirements similar to those in Section III.G.2 of Appendix R to Part 50, "unless justified per Reference [19]." Again, Reference 19 is the CPSES FPR.

In summary, the CPSES FSAR refers to the CPSES FPR for exceptions to the type of requirements in Section III.G.2 of Appendix R. Of note, the FSAR reference to the FPR is not limited to the Fire Hazards Analysis Report in Section II of the CPSES FPR, but instead refers to the entire FPR.

3.3 CPSES FPR

CPSES FPR is part of the Comanche Peak licensing basis. It was provided as part of the Comanche Peak OL application and is referenced in the CPSES FSAR. Furthermore, as provided in LIC-100, *Control of Licensing Bases for Operating Reactors*, Rev. 1 (Jan. 2004), Section 3.6:

The licensing bases associated with fire protection are contained in the applicable regulations, the license condition associated with the Fire Protection Program, and the

Fire Protection Program itself. Some licensees may incorporate by reference the Fire Protection Program into a facility's FSAR.

More specifically, the CPSES FPR was reviewed and approved by the NRC in the SSERs for the OL. NUREG-0797, SSER 23, was issued February 1990, and approved the CPSES FPR through Revision 3. NUREG-0797, SSER 26, was issued February 1993, and approved the CPSES FPR through Revision 6.

As discussed below, CPSES FPR Section II-4.5 (which is part of the Fire Hazards Analysis Report (FHAR)) leads to FPR Section II-3.0 which leads to FPR Section II-3.7 which states that manual operations are allowed to achieve hot standby following a reactor trip and to maintain hot standby conditions.

CPSES FPR, Revision 27 (December 20, 2007), Section II-4.5 states in the last paragraph:

For each fire area, the consequences of the Design Basis Fire were determined based upon the assumptions made in Section II-3.0 of this FHAR. In addition, the possibility of a radioactive release to the environment was evaluated based upon the Smoke Removal Study.

CPSES FPR, Revision 27 (December 20, 2007), Section II-3.0 then states:

3.7 Separation criteria for cabling is addressed through the Fire Safe Shutdown Analysis and separation concerns are identified in Section III of this FPR.

CPSES FPR, Revision 27 (December 20, 2007), Section III-3.1.1 states in part:

- Manual operations are allowed to achieve hot standby following a reactor trip and to maintain hot standby conditions.

Manual actions are listed throughout CPSES FPR Section III-3 as acceptable to mitigate Fire Safe Shutdown Analysis (FSSA) interactions.

CPSES FPR, Revision 27 (December 20, 2007), Section III-4.3.1, Fire Area Compliance Mechanisms, states in part:

- In order to meet the criteria stated in Section II-4.5 within an area (fire area, fire zone, room, etc.), the following mechanisms are utilized:
 - (3) Manual operation: See the definition in Section 1-2. This resolution is used in situations where the time required to perform this resolution does not preclude fire safe shutdown.

FPR, Revision 3 (September 15, 1989), (which was in effect at time of Unit 1 OL) and FPR, Revision 6 (July 31, 1992), (which was in effect at time of Unit21 OL) have similar wording as in FPR, Revision 27.

In summary, the CPSES FPR explicitly states that manual actions are allowed to achieve and maintain safe shutdown. As discussed above, these provisions are part of the licensing basis for Comanche Peak.

3.4 SSERs for Comanche Peak

The NRC's safety evaluations (SE) and safety evaluation report (SERs) are not considered to be part of the licensing basis for a plant, but they do provide valuable insight regard the staff's positions. As stated in LIC-100, *Control of Licensing Bases for Operating Reactors*, Rev. 1 (Jan. 2004), Section 6.5:

The SEs and SERs are valuable in that they provide the bases for the staff's decisions. The staff should not attempt to establish licensing bases information in SEs or SERs. The staff can stress the importance of certain licensing bases information and can cite regulations, regulatory commitments, or other established licensing bases information in its safety evaluations. It is important that the licensees provide the licensing bases information so that there is no confusion following the licensing action and to avoid a perception of staff-imposed backfits (see 10 CFR 50.109).

The NRC issued SSER 21 for Comanche Peak in April 1989. SSER 21 addresses manual actions within the same fire area on pages 9-9 and 9-10. The SSER referenced the NRC audit of October 19-23, 1987 and the NRC site visit of May 2-6, 1988, which are discussed in Section 3.5 of this attachment.

The SSER 21 conclusion is as follows:

During the audit of October 19-23, 1987, the staff raised a concern regarding the necessity for plant operators to perform certain manual actions within the same fire area as that containing the postulated fire. During the May 2-6, 1988, site visit, the applicant presented the staff with evaluations detailing each of the manual actions in question, the fire protection features of the fire area which the manual action was to be taken, and justification for acceptability of the situation. These evaluations were reviewed in detail by the staff, and each manual action in question was walked down in the field.

As a result of this review, two additional plant modifications were deemed necessary. These modifications are:

- (1) Fire Area CA (Containment) – Control and power cables associated with valves 8112 (seal return) must be separated from cable interactions that could produce a spurious safety injection signal. This would preclude the need for manual

actions to restore the seal return in the fire area if a fire caused the loss of this return.

- (2) Fire Area AA-S (Auxiliary Building-South) – Manual action to realign the component cooling water (CCW) valves may be required to being within 30 minutes of a fire occurring in the same fire area. The concern raised by the staff was that the valves in question were approximately 15 feet above ground and would be difficult to reach in the short amount of time required. Plant modifications are required to facilitate quick access to the valves.

With the modifications identified above, the manual actions in the same fire areas were found to be acceptable. Staff acceptance is based on the fact that there is sufficient distance to perform manual operations from the closest cable that could cause the spurious operations and that the fire protection features of the fire areas and the timeframes of the manual operations required in relation to anticipated fire development and control are adequate.

Thus, the NRC explicitly approved the use of manual actions in SSER 21.

3.5 NRC Inspection Correspondence

As discussed above, SSER 21 refers to NRC two NRC inspections of the Comanche Peak fire protection system. The relevant inspection reports for Comanche Peak, and the responses by Comanche Peak, are discussed below.

The NRC issued Inspection Report 50-445/87-22 (January 12, 1988) for an inspection conducted in October 1987. This inspection report states:

The following procedures in addition to Procedure No. ABN-803A, "Response to a Fire in the Control Room or Cable Spreading Room," have been prepared by the applicant to address manual actions:

- ABN-804A "Response to Fire in the Safeguards Building"
- ABN-805A "Response to Fire in the Auxiliary Building or Fuel Building"
- ABN-806A "Response to Fire in the Electrical and Control Building"
- ABN-807A "Response to Fire in the Containment Building"
- ABN-808A "Response to Fire in the Service Water Intake Structure"
- ABN-809A "Response to Fire in the Turbine Building"

The issue of adequacy of manual actions which must be taken in the same area as the postulated fire remains unresolved pending TU Electric's revision to Calculation No. 152 and NRC review of the document (445/8722-U-02).

In response to this unresolved item in Inspection Report 87-22, Comanche Peak submitted letter TXX-88432 dated May 3, 1988. The response stated that:

Calculation No. 152, Revision 4 is complete and available for NRC review. It contains a revised listing of manual actions by fire area, which easily identifies actions required in the same area as the fire. Justifications for the adequacy of these actions is provided.

Calculation No. 152, Revision 4 is EPM-P257-152-004, Fire Safe Shutdown Analysis for CPSES Unit 1 (April 28, 1988). The cover document discusses manual actions and contains Table 6-1. "Comanche Peak Steam Electric Station Unit 1 FSSA Fire Area Results Summary Table." This table has a column for "ABNORMAL OP. PROC REQ'D" and an "X" is marked for fire areas that would require abnormal operations procedures, i.e., operator manual actions:

Based upon this response and Calculation 152, the NRC conducted a follow-up inspection in May 1988 and documented the inspection in NRC Inspection Report 50-445/88-39, 50-446/88-33 (June 24, 1988). That inspection report contains the following statement:

Unresolved Item (445/8722-U-02): Manual actions. The original issue was with the adequacy of those manual actions which must be taken in the same area as the postulated fire. By letter dated May 3, 1988, TU Electric provided revised Calculation 152 which contained a revised listing of all the manual actions that are in the same fire area as the postulated fire. The NRC inspector reviewed the actions and the justifications of the identified manual actions and found them to be acceptable. Therefore, Unresolved Item (445/8722-U-02) is considered closed.

In summary, in 1988, the NRC inspected the Comanche Peak's use of manual actions, and found them acceptable, and these inspections were referenced in SSER 21.²

4.0 Conclusions

Both Regulatory Guide 1.189, Revision 1, Section 5.3.3 and RIS 2006-10 state that plants licensed after 1979 may rely upon manual actions when those actions were approved during licensing. Since before the licensing of Comanche Peak, the licensing basis for Comanche Peak allowed credit for manual actions to achieve and maintain safe shutdown. Additionally, these manual actions were reviewed and approved by the NRC in SSER 21. Therefore, Comanche Peak may use the manual actions identified in the CPSES FPR to achieve and maintain safe shutdown.

² In addition to the licensing and inspection correspondence related to Comanche Peak, the Comanche Peak Post-Fire Safe Shutdown Manual Action Feasibility was performed in August 2007 and the Manual Action Feasibility Report, ER-ME-126, Rev. 0, was issued August 2007. This report demonstrates that post-fire manual actions performed in response to fire are feasible and reliable. Comanche Peak post-fire manual actions contained in the ABN-800 series procedures were systematically walked down by qualified operators and evaluated to the NRC's manual action feasibility criteria promulgated in NRC Inspection Manual Procedure 71111.05T.