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Ref: #10CFR50.54

CPSES- 200501323
Log # TXX-05118

June 29, 2005

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
REQUEST FOR ADDITIONAL INFORMATION REGARDING
RESPONSE TO BULLETIN 2003-01

REF: 1. Letter logged TXX-03130, dated August 8, 2003 from Mike Blevins to the NRC
2. Letter logged TXX-04194, dated October 28, 2004 from Mike Blevins to the NRC

Gentlemen:

The NRC requested TXU Generation Company LP (TXU Power) to provide information regarding the emergency core cooling system (ECCS) and containment spray system (CSS) recirculation functions with respect to the potentially adverse post-accident debris blockage effects per Bulletin 2003-01. Per Reference 1 above, TXU Power provided the requested response for Comanche Peak Steam Electric Station (CPSES), Units 1 and 2. Per Reference 2 above, TXU Power provided additional information regarding the response to the subject Bulletin. On May 11, 2005, the NRC requested additional information regarding Bulletin 2003-01 via email. The information requested by the NRC staff is provided in the attachment to this letter.

A103

This communication contains no new licensing basis commitments regarding CPSES Units 1 and 2.

Should you have any questions, please contact Jimmy Seawright at (254) 897-0140.

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

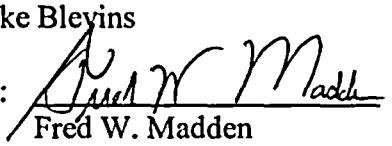
Executed on June 29, 2005.

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC
Its General Partner

Mike Blevins

By: 
Fred W. Madden
Director, Regulatory Affairs

JDS
Attachment

c - B. S. Mallett, Region IV
M. C. Thadani, NRR
Resident Inspectors, CPSES

Response to NRC Request for Additional Information

NRC Question:

TXU Power has committed to implement selected interim compensatory measures (ICMs) [letter dated August 8, 2003] and Westinghouse Owner's Group "Candidate Operator Actions" (COAs, interim compensatory measures equivalent to ICMs in response to the Bulletin).

In TXU Power's RAI response [letter dated October 28, 2004], TXU Power committed to evaluate COA 1 Early Spray Termination, COA 2 Manual Realignment for Single Train Operation with a Standby Train Aligned to the RWST, COA 3 Termination of One Train of ECCS After Switchover to Recirculation, and COA 6 Inject More Than One RWST Volume "as a long term GSI-191 activity (a schedule consistent with Generic Letter 2004-02 resolution)."

The staff does not accept the schedule proposed by TXU Power for evaluating these COAs. The Westinghouse Owners Group published WCAP-16204, "Evaluation of Potential ERG and EPG Changes to Address NRC Bulletin 2003-01 Recommendations (PA-SEE-0085)," in March 2004, and licensees have already had a full year in which to evaluate these proposed COAs. Compensatory measures such as those described in Bulletin 2003-01 were intended to be implemented on a timely basis in order to reduce the risks associated with potential sump blockage while evaluations to confirm compliance with the regulations could be completed. An evaluation schedule "consistent with Generic Letter 2004-02 resolution" does not meet the intent of Bulletin 2003-01.

Please provide a revised schedule for evaluating these COAs (which is consistent with the intent of Bulletin 2003-01), as the staff expects a valid technical basis for any decisions to not implement these COAs.

TXU Power Response:

Candidate Operator Actions (COAs) 1 (Early Spray Termination), 2 (Manual Realignment for Single Train Operation with a Standby Train Aligned to the RWST), 3 (Termination of One Train of ECCS After Switchover to Recirculation), and 6 (Inject More Than One RWST Volume) in WCAP-16204, "Evaluation of Potential ERG and EPG Changes to Address NRC Bulletin 2003-01 Recommendation (PA-SEE-0085) ," Revision 1 (March 2004), were reviewed in response to the NRC Bulletin and were found to require substantial engineering analysis and regulatory required reviews prior to implementation which were not consistent with "interim compensatory measures" as requested by the Bulletin 2003-01. These were evaluated as a long

term GSI-191 activity as a commitment over and above that requested by the Bulletin. The evaluations are complete and the result of the additional analyses is described as follows:

COA 1 [A1a-W] Early Spray Termination - This option was evaluated and found not applicable to CPSES.

Background

WCAP-16204 Task B3 shows that accident dose could be increased by 10% for this COA.

WCAP-16204 Task B10 notes that stopping containment spray prior to the start of ECCS recirculation can delay the onset of recirculation; however, as the break size increases, the delay becomes less significant.

The WCAP also notes that containment fan coolers are required to maintain temperatures within EQ limitations for a period of time should the operating train of containment spray fail.

CPSES Evaluation

This COA is not considered viable because CPSES does not have safety grade containment fan coolers, as assumed by the WCAP in Section 2.2.3, and as such, the evaluation of this option in WCAP-16204 does not apply. The normal containment cooling is automatically secured during a LOCA and is not designed to restart in an adverse environment. The containment spray pumps for plants like CPSES are much larger than for plants with safety related fan coolers. As such, once containment spray actuates, operator actions are time critical and the suggested procedure changes in WCAP-16204 do not apply.

Stopping a train of containment spray would allow the spray headers to drain. The discharge valve would have to be closed before containment spray pumps could restart. This valve takes 120 seconds to close and 120 seconds to reopen. This is required to prevent pump runout and trip. Preliminary analyses indicated that the equipment qualification envelope would be exceeded before the train could be restarted and the discharge valve opened sufficiently to refill the spray headers to restore cooling if the remaining train failed.

In addition, the perceived benefit of reduced flow to the emergency sump on initiation of sump recirculation is invalid for the CPSES design. Initial flow to the sump for core cooling is not changed by this COA. In fact, this change would be adverse to emergency sump performance because two trains of spray would be increasing water levels at the onset of recirculation and would result in additional clean screen and additional NPSH margin. In addition, high spray flow will increase transport of debris to inactive sumps and stagnant areas where later transport to the sump during recirculation is unlikely. For small breaks, the effective removal of debris from potential sump blockage is increased by high spray flow. Stopping one train of containment spray prior to initiation of sump recirculation is adverse to emergency sump performance.

In conclusion, COA A1a-W is neither viable nor beneficial for CPSES emergency sump performance.

COA 2 [A2] Manual realignment for single train operation with a standby train aligned to the RWST – This option was evaluated and found not applicable to CPSES.

Background

This option is to go to sump recirculation with one train of Emergency Core Cooling System (ECCS) early with less water in containment and stopping all containment spray. This option would leave water in the RWST with the connected ECCS and containment spray train in standby. The desired benefit is that it would "eliminate common cause failure" of ECCS for Small Break Loss-of-Coolant Accidents (SBLOCA).

CPSES Evaluation

This COA is not viable for the CPSES containment spray design as discussed under COA 1 above and presents many issues not addressed in WCAP-16204. The likelihood of emergency sump blockage would be increased by this option due to lower water level (i.e., decreased net positive suction head (NPSH) margin available) and decreased screen surface areas submerged. Both ECCS flow rates and debris for small break LOCA are significantly less than for large LOCAs. For CPSES, securing one train of ECCS would be insignificant unless sprays could also be stopped. Because this is not an option as described above and could increase the likelihood of sump blockage for one operating train, this COA is neither viable nor beneficial.

This COA is not considered appropriate for CPSES.

COA 3 [A3-W] Termination of one train of ECCS after switchover to recirculation - This option was evaluated and found not applicable to CPSES.

Background

The perceived benefits of stopping one train of safety injection (SI) pumps after recirculation alignment are to reduce debris transport and to collect debris on one emergency sump screen, preserving the opposite train and screen. This COA inherently assumes stopping one train of containment spray.

CPSES Evaluation

Because CPSES does not have safety grade containment fan coolers, termination of all flow to one of the emergency sumps is not feasible as described above.

This COA would occur after ECCS recirculation alignment but before spray realignment. Termination of spray was ruled out under COA 1 above. In addition, the time critical nature of RWST switchover is such that it is not practical to add steps in the procedure prior to full switchover of both ECCS and containment spray. Containment spray recirculation flow is over 62% of the total emergency sump flow for large LOCA with two trains operating. ECCS flow is less than 38% of the total emergency sump flow. Stopping one train of ECCS would reduce transport flow by only 20%. Therefore, any benefits in reduced transport early in recirculation would be minimal. Transport velocities are low for CPSES. Screen approach velocities are more significant for the current screens. Termination of one train of ECCS in recirculation will actually increase head loss to the affected emergency sump as approach velocities to the remaining sump would increase by 3% (i.e., a negative impact on head loss). If that sump was blocked and the standby SI train started, it would be possible for the debris to re-entrain and transport to the second emergency sump causing blockage.

This COA is not considered appropriate for CPSES.

COA 6 [A6] Inject more than one RWST volume - This option was evaluated and found to be beneficial for CPSES. It has already been implemented to the appropriate extent by CPSES.

Background

The Westinghouse assessment of this option assumes that transfer of greater than one RWST volume is outside the design basis and the injection of additional water should only be a last resort. COA 5, which was implemented at CPSES, makes a source of water available if needed. Existing Westinghouse ERGs and SAMGs which are similar to that proposed by the WCAP were used as the basis for CPSES ERGs and SAMGs.

CPSES Evaluation

There are both a minimum and a maximum RWST volume in the CPSES design basis. There is also a maximum design basis LOCA flood level. Adding as little as 100,000 gallons to ensure the top of the screens for the emergency sumps are covered would be very beneficial and increase NPSH significantly. This flood level is below the design basis maximum flood level.

An appropriate version of this COA has been incorporated into ERGs as described in the CPSES Response to NRC Bulletin 2003-01 regarding operator training on indications of, and response to sump clogging (see References 1 and 2).

In addition, COA A5 was implemented as described in Reference 2. No further changes are warranted.