

July 14, 2005

MEMORANDUM TO: David Terao, Section Chief, LPD4-1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: David L. Solorio, Chief */RA/*  
Balance of Plant Section  
Plant Systems Branch  
Division of Systems Safety and Analysis  
Office of Nuclear Reactor Regulation

SUBJECT: COMANCHE PEAK, UNIT 1 AND UNIT 2 - CLOSEOUT LETTER FOR  
BULLETIN 2003-01, "POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON  
EMERGENCY SUMP RECIRCULATION AT PRESSURIZED-WATER  
REACTORS"

The Plant Systems Branch (SPLB) has reviewed and evaluated the information provided in responses to Bulletin 2003-01 by the licensee for the Comanche Peak, Unit 1 and Unit 2.

SPLB has determined that the licensee's actions have been responsive to and meet the intent of Bulletin 2003-01. Attached to this letter is the proposed close-out letter for the above plant.

If you have any questions, please contact Leon Whitney or Alan Wang. Please include Alan Wang and Leon Whitney on the distribution list.

Docket Nos: 50-445, 50-446

Attachment: As stated

CONTACTS: Leon Whitney, SPLB/DSSA  
415-3081  
Alan B. Wang, DLPM, PD IV  
415-1445

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|--------|----------------|------------|------------|
| OFFICE | DLPM/PDIV-2/PM | DSSA/SPLB  | DSSA/SPLB  |
| NAME   | AWang          | LWhitney   | DSolorio   |
| DATE   | 07/ 15 /05     | 07/ 12 /05 | 07/ 14 /05 |

**OFFICIAL RECORD COPY**

TXU Power  
Comanche Peak Steam Electric Station  
P.O. Box 1002 (E01)  
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK UNIT 1 AND UNIT 2 - RESPONSE TO NRC BULLETIN 2003-01, "POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON EMERGENCY SUMP RECIRCULATION AT PRESSURIZED WATER REACTORS (TAC NOS. MB9567 AND MB9568)

Dear Mr. Blevins:

This letter acknowledges receipt of your response dated August 8, 2003, to Nuclear Regulatory Commission (NRC) Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors," dated June 9, 2003. The NRC issued Bulletin 2003-01 to all pressurized-water reactor (PWR) licensees requesting that they provide a response, within 60 days of the date of Bulletin 2003-01, that contains either the information requested in following Option 1 or Option 2 stated in Bulletin 2003-01:

- Option 1: State that the emergency core cooling system (ECCS) and containment spray system (CSS) recirculation functions have been analyzed with respect to the potentially adverse post-accident debris blockage effects identified in the Discussion section, and are in compliance with all existing applicable regulatory requirements.
- Option 2: Describe any interim compensatory measures that have been implemented or that will be implemented to reduce the risk which may be associated with potentially degraded or nonconforming ECCS and CSS recirculation functions until an evaluation to determine compliance is complete. If any of the interim compensatory measures listed in the Discussion section will not be implemented, provide a justification. Additionally, for any planned interim measures that will not be in place prior to your response to this bulletin, submit an implementation schedule and provide the basis for concluding that their implementation is not practical until a later date.

You provided an Option 2 response.

Bulletin 2003-01 discussed six categories of interim compensatory measures (ICMs):

(1) operator training on indications of and responses to sump clogging; (2) procedural modifications if appropriate, that would delay the switchover to containment sump recirculation (e.g., shutting down redundant pumps that are not necessary to provide required flows to cool the containment and reactor core, and operating the CSS intermittently); (3) ensuring that alternative water sources are available to refill the RWST or to otherwise provide inventory to

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inject into the reactor core and spray into the containment atmosphere; (4) more aggressive containment cleaning and increased foreign material controls; (5) ensuring containment drainage paths are unblocked; (6) ensuring sump screens are free of adverse gaps and breaches.

You stated in your bulletin response of August 8, 2003, that you had implemented the following interim compensatory measures:

(1) an enhanced foreign material controls program for outage and at-power containment entries including materials accountability documentation for the foreign materials exclusion (FME) area, exclusion of paper tags, out of containment wrapper discard procedures, the use of mirrors and remote monitoring cameras to inspect locations inaccessible due to ALARA concerns, loose debris removal in all accessible areas, coating inspections, evaluations and correction, the application of cleanliness standards specific to the containment, and good housekeeping practices to minimize dust and dirt inside containment- ICM category #4;

(2) inspection of floor sleeves draining to the lower elevations and grating covered access openings and seismic gap opening, the locking open of refueling cavity drains, and the locking open of four loop room wire mesh doors for power operations - ICM category #5;

(3) visual inspection of the containment sump and subsystem suction inlets for debris, inspection of the suction inlet trash racks for structural distress or abnormal corrosion, with associated guidance sufficient to identify and repair abnormal gaps and breaches in the screens - ICM category #6;

(4) modification of licensed operator training material to include indications of sump clogging during switchover activities, including direction for continuous monitoring of available indications, potential response actions in the event of containment sump degradation, emergency response guideline (ERG) guidance on the containment sump clogging issue in general, and (in addition to the existing clogging response guidance to throttle RWST flow) direction to consider stopping containment spray pumps not needed for containment pressure control, consider reducing ECCS flow to the minimum required for decay heat removal, to consider the addition of makeup to the refueling water storage tank (RWST), and to consider the injection of makeup into the reactor coolant system (RCS) from any available sources - ICM category #1 and ICM category #3;

(5) existing procedures to refill the RWST from alternate sources (chemical and volume control system (CVCS) blended flow makeup, spent fuel pool, or from the opposite unit's RWST) once it has been determined that a loss of both recirculation sump suction paths exists - ICM category #3; and

(6) guidance for small to medium LOCAs to cooldown and depressurize the RCS to reduce break flow, reducing injection flow requirements to the RCS, and (for smaller LOCAs) achieving cold shutdown conditions before the RWST is drained to the switchover level - ICM category #2.

You also stated in your response that you would be implementing the following interim compensatory measures:

- (1) a review focused on a possible enhancements to place greater emphasis on the collection and removal of latent fiber and particulate debris from transportable areas (by fall 2003) - ICM category #4;
- (2) a review to identify the benefits of enhanced instrumentation to indicate sump performance (by summer, 2004) - ICM category #1;
- (3) procedural modifications in the RWST refill procedure to enhance the monitoring of indications of a degrading containment sump (by summer 2004) - ICM category #3;
- (4) procedure modifications to add, as a compensatory measure, the injection of makeup to the RCS from alternate sources when it has been determined that sump conditions are degrading (by summer 2004) - ICM category #3; and
- (5) additional contractor personnel and permanent plant employees to provide awareness of containment sump performance issues and how each employee can minimize the degradation of sump conditions (by fall 2003) - ICM category #1.

You further stated in your response, including justifications, that you would not be implementing procedural modifications that would delay the switchover to containment sump recirculation.

In a October 28, 2004, response to a September 13, 2004, NRC request for additional information (RAI) you discussed your considerations of the potential interim compensatory measures (termed Candidate Operator Actions or COAs) contained in Westinghouse Owners Group (WOG) report WCAP-16204, Revision 1, "Evaluation of Potential ERG and EPG Changes to Address NRC Bulletin 2003-01 Recommendations (PA-SEE-0085)." You stated that certain COAs had been rejected, certain COAs were to be implemented on the short term as part of Bulletin 2003-01 response, and that COA 1, COA 2, COA 3 and COA 6 were to be evaluated under GSI-191 long term resolution efforts (i.e., on a schedule consistent with resolution of Generic Letter 2004-02), and that these specific compensatory measures would require substantial engineering analysis and regulatory required reviews prior to their implementation.

In your RAI response regarding the WOG COAs you discussed:

- (1) COA 4, "Early Termination of One RHR Pump Prior to Recirculation Alignment," concluding that it was applicable to CE plants only, unlike Comanche Peak's Westinghouse design;
- (2) COA 5 "Refill of RWST," concluding that steps had been added to begin RWST refill immediately upon completion of recirculation switchover - ICM category #3;
- (3) COA 7 "More Aggressive Cooldown and Depressurization Guidance Following a Small Break LOCA," concluding that this was an existing procedural feature as discussed above - ICM category #2;
- (4) COA 8 "Provide Guidance on Symptoms and Identification of Containment Sump Blockage," concluding that this COA was completed as discussed above - ICM category #1;

(5) COA 9 “Develop Contingency Actions in Response to Containment Sump Blockage, Loss of Suction, and Cavitation,” concluding that this COA was completed as discussed above - ICM category #1;

(6) OA 10 “Early Termination of One Train of High Head Injection Prior to Recirculation Alignment,” concluding that this COA was applicable to CE plants only, unlike Comanche Peak’s Westinghouse design; and

(7) COA 11 “Prevent or Delay Containment Spray for Small Break LOCAs in Ice Condenser Plants,” concluding that this COA was not applicable to the Comanche Peak dry containment design.

In a June 29, 2005, response to May 11, 2005, supplemental RAI you discussed:

(1) COA 1, “Early Spray Termination”, concluding that this COA was not viable for Comanche Peak because of the lack of safety grade fan coolers (and resultant need for full spray operation), equipment qualification concerns and adverse effects upon containment flow characteristics, and that therefore this COA would not be implemented at Comanche Peak;

(2) COA 2, “Manual Realignment for Single Train Recirculation Operation with a Standby Train aligned to the RWST,” concluding that this COA was not viable for Comanche Peak because of its lack of non-safety grade fan coolers (and resultant need for full spray operation), decreased available net-positive suction head (NPSH) margin, and decreased submerged screen areas, and that therefore this COA would not be implemented at Comanche Peak;

(3) COA 3, “Terminate One Train of Safety Injection after ECCS Alignment,” concluding that this COA was not viable for Comanche Peak because of its lack of non-safety grade fan coolers (and resultant need for full spray operation);

(4) COA 6, “Inject More Than One RWST Volume From a Refilled RWST or By Bypassing the RWST,” concluding that this COA had been incorporated into the ERGs as responses to degraded ECCS flow as discussed in the Comanche Peak Bulletin 2003-01 response (see above) - ICM category #3.

The NRC staff has considered your Option 2 response for compensatory measures that were or were to have been implemented to reduce the interim risk associated with potentially degraded or nonconforming ECCS and CSS recirculation functions. Based on your response, the NRC staff considers your actions to be responsive to and meet the intent of Bulletin 2003-01. Please retain any records of your actions in response to Bulletin 2003-01, as the NRC staff may conduct subsequent inspection activities regarding this issue.

Mr. Blevins

5

Should you have any questions, please contact me at 301-415-[xxxx] or the lead PM for this issue, Alan Wang at 301-415-1445.

Sincerely,

[Name], Project Manager, Section [1 or 2]  
Project Directorate [I, II, III, or IV]  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

cc: See next page [Plant Mailing List]

**ADD TO DISTRIBUTION:** AWang, RArchitzel, DSolorio, MKowal, LWhitney