UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

April 10, 2006

MEMORANDUM TO: David Dumbacher, Resident Inspector, Callaway Station
Project Branch B, Division of Reactor Projects

Greg Pick, Senior Reactor Inspector
Engineering Branch 2, Division of Reactor Safety

FROM: Arthur T. Howell III, Director, Division of Reactor Projects **/RA/**

SUBJECT: SPECIAL INSPECTION CHARTER TO EVALUATE CALLAWAY PLANT COMPONENT COOLING WATER INITIATION TO THE RESIDUAL HEAT REMOVAL HEAT EXCHANGERS DURING THE INITIAL POST-LOCA RECIRCULATION PHASE

A Special Inspection Team is being chartered in response to the discovery that component cooling water (CCW) would not be established to the residual heat removal (RHR) heat exchangers until after the postloss of coolant accident (LOCA) recirculation phase was initiated. This could lead to a failure of the CCW system and a loss of safety injection and other essential loads (such as spent fuel pool cooling). The licensee implemented prompt actions to establish flow to the RHR heat exchangers to restore the safety systems and essential loads to an operable status. You are hereby designated as the Special Inspection Team members. Mr. Dumbacher is designated as the team leader.

A. Basis

On March 30, 2006, the Callaway Plant reported (CAR 200602565) that, during a simulator exercise on March 20, 2006, an operator raised a concern regarding the timeliness of initiation of the CCW flow to the RHR heat exchangers during post-LOCA (large break) recirculation from the containment safety injection sumps. The licensee identified that the sequence of establishing CCW flow, and the delays in its initiation because of the sequence in the emergency operating procedures, could result in the potential to exceed the CCW design temperature during a large LOCA when containment recirculation is first initiated. The licensee found during a simulator exercise that CCW flow to the RHR heat exchangers was not initiated until 4-6 minutes after containment recirculation flow was first established through the RHR heat exchangers. The Final Safety Analysis Report describes that CCW is placed in service prior to refueling water storage tank lo-lo 1 level being reached and the swapover occurring. The licensee had previously established, through the emergency operating procedures, that CCW would be initiated through the RHR heat exchanger following the swapover to containment recirculation. The licensee's identification that the CCW system may not actually be aligned in sufficient time to ensure adequate cooling of the

RHR heat exchanger resulted in the licensee questioning their ability to meet design basis requirements. The license's immediate corrective action included aligning and running the CCW system continuously to ensure that adequate cooling water was available to the RHR heat exchanger in the event of a design basis LOCA event.

This Special Inspection Team is chartered to compare the as-found conditions to the licensing basis for containment recirculation; determine if there are generic safety implications associated with the timing of CCW initiation post-LOCA through the RHR heat exchangers; review the identification, evaluation, and determination whether the CCW system and associated safety injection systems were inoperable for the postrecirculation phase; review the licensee's compensatory measures following discovery of the condition; and review the licensee's calculations regarding the impact of the timing of CCW initiation to the RHR heat exchangers as provided in their emergency operating procedures.

B. Scope

The team is expected to address the following:

1. Develop a complete sequence of events related to the discovery of the CCW timing concern for post-LOCA safety injection and the followup actions taken by the licensee.

2. Compare operating experience involving post-LOCA emergency core cooling system (ECCS) cooling requirements to actions implemented at the Callaway Plant. Review prior opportunities to have addressed EOP and/or design considerations associated with ECCS recirculation cooling requirements, including the effectiveness of those actions. Determine if there are any generic issues related to the design and operating practices associated with post-LOCA recirculation and ECCS cooling. Promptly communicate any potential generic issues to regional management.

3. Review the extent of condition determination for this condition and whether the licensee's actions are comprehensive. This should include potential for other EOP validation issues as well as potential ECCS recirculation timing issues.

4. Review the licensee's determination of the cause of any procedural design deficiencies and/or operating practices that allowed the potential for CCW system design temperature to be exceeded. Independently verify key assumptions and facts. If available, determine if the licensee's root cause analysis and corrective actions have addressed the extent of condition for problems with CCW cooling to the safety systems.

5. Determine if the Technical Specifications were met for the ECCS and CCW systems following the implementation of compensatory measures.

6. Determine if the supporting analyses for the licensee's compensatory measures were made in accordance with 10 CFR 50.59.

7. Review the calculations the licensee is developing to evaluate the CCW initiation sequence for post-LOCA ECCS and CCW operability.

8. Collect data necessary to support a risk analysis. Specifically obtain information associated with the degree to which the ECCS and CCW systems would be affected during post-LOCA recirculation, the break sizes that are affected, the containment response, the ability to recover failed pumps and other components, and the dominant accident sequences.

C. Guidance

Inspection Procedure 93812, "Special Inspection," provides additional guidance to be used by the Special Inspection Team. Your duties will be as described in Inspection Procedure 93812. The inspection should emphasize fact-finding in its review of the circumstances surrounding the event. It is not the responsibility of the team to examine the regulatory process. Safety concerns identified that are not directly related to the event should be reported to the Region IV office for appropriate action.

The Team will report to the site, conduct an entrance, and begin inspection no later than April 11, 2006. While on site, you will provide daily status briefings to Region IV management, who will coordinate with the Office of Nuclear Reactor Regulation, to ensure that all other parties are kept informed. A report documenting the results of the inspection should be issued within 30 days of the completion of the inspection.

This Charter may be modified should the team develop significant new information that warrants review. Should you have any questions concerning this Charter, contact me at (817) 860-8248.

cc via E-mail:

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SUNSI Review Completed: _WBJ_____ ADAMS: / Yes ☐ No Initials: _WBJ
/ Publicly Available ☐ Non-Publicly Available ☐ Sensitive / Non-Sensitive

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WBJones;df:lao	AVegel	DDChamberlain	ATHowell	
/RA/	**/RA/**	**/RA/**	**/RA/**	
4/10/06	4/10/06	4/10/06	4/10/06	

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