

January 19, 2006

Mr. R. T. Ridenoure  
Vice President - Chief Nuclear Officer  
Omaha Public Power District  
Fort Calhoun Station FC-2-4 Adm.  
Post Office Box 550  
Fort Calhoun, NE 68023-0550

SUBJECT: FORT CALHOUN STATION, UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO EXTENSION DATE FOR CORRECTIVE ACTIONS REGARDING GENERIC LETTER 2004-02, "POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON EMERGENCY RECIRCULATION DURING DESIGN BASIS ACCIDENTS AT PRESSURIZED-WATER REACTORS," (TAC NO. MC9564)

Dear Mr. Ridenoure:

By letter dated November 18, 2005, Omaha Public Power District (OPPD/the licensee) submitted a response to Generic Letter (GL) 2004-02 for the Fort Calhoun Station, Unit 1 (FCS). The licensee requested an extension for the GL closure date of December 31, 2007, to the end of the refueling outage scheduled to start in March 2008. The Nuclear Regulatory Commission (NRC) has reviewed OPPD's letter dated November 18, 2005, in which it also provided information regarding the FCS considerations of Information Notice 2005-26. In OPPD's November 18, 2005, letter OPPD listed five corrective measures to be completed in the FCS 2006 refueling outage (including removal of significant quantities of calcium silicate insulation material from containment). This letter also described existing procedural guidance: 1) to shutdown, under certain conditions, redundant high-pressure safety injection (HPSI) and core spray pumps to minimize the strainer approach velocity; 2) to reduce the total sump flow when pump cavitation is detected; and 3) to refill the safety injection refueling water tank (SIRWT) with HPSI realignment to draw a suction on the SIRWT and inject into the reactor coolant system, if HPSI suction via the containment sump strainers in the recirculation mode is lost.

In addition, OPPD indicated that its strategy for compliance with Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," was provided in the FCS August 31, 2005, followup response to Generic Letter 2004-02. This strategy has been to "procure sump strainers with sufficient margin to accommodate any chemical effects that were identified by industry testing." OPPD concluded that: "... OPPD has [now] determined that the chemical effects and potential downstream effects from the combination of trisodium phosphate (TSP) and calcium silicate insulation identified in Information Notice 2005-26 cannot be accommodated by this [current strainer sizing] strategy and will require additional testing (industry and plant-specific) and evaluation." OPPD described envisioned testing and stated that such testing could not be completed in time to support design and installation of replacement sump strainers during the scheduled fall 2006 refueling outage. Therefore, OPPD stated that the implementation of the complete GSI-191 modifications by December 31, 2007, as required by GL 2004-02, could not be accomplished.

The NRC staff has reviewed OPPD's submittal and had a teleconference on January 13, 2006, with OPPD to discuss this submittal. OPPD has stated that it has developed an option (item 3 above) to only inject as an interim corrective measure, which would allow them to comply with Section 50.46 of Title 10 of the *Code of Federal Regulations* until a permanent solution is implemented. The NRC staff has determined that additional information is needed to complete our review. A request for additional information (RAI) is enclosed. This request was discussed with Thomas Matthews of your staff on January 13, 2006, and it was agreed that a response would be provided within 30 days of receipt of this letter.

If you have any questions, please contact me at (301) 415-1445.

Sincerely,

*/RA/*

Alan B. Wang, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosure: RAI

cc w/encl: See next page

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**/RA/**  
Alan B. Wang, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
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Docket No. 50-285

Enclosure: RAI

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION  
REGARDING GENERIC LETTER 2004-02 EXTENSION REQUEST FOR  
OMAHA PUBLIC POWER DISTRICT  
FORT CALHOUN STATION  
DOCKET NO. 50-285

By letter dated November 18, 2005, Omaha Public Power District (OPPD/the licensee) submitted a response to Generic Letter (GL) 2004-02 for the Fort Calhoun Station, Unit 1 (FCS). The licensee requested an extension for the GL closure date of December 31, 2007, to the end of the refueling outage scheduled to start in March 2008. The Nuclear Regulatory Commission (NRC) staff has reviewed OPPD's submittal and had a teleconference on January 13, 2006, with OPPD to discuss this submittal.

OPPD indicated that its strategy for compliance with Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," was provided in the FCS August 31, 2005, followup response to Generic Letter 2004-02. Its strategy has been to "procure sump strainers with sufficient margin to accommodate any chemical effects that were identified by industry testing." OPPD has stated that it has developed an option to only inject as an interim corrective measure that would allow them to comply with Section 50.46 of Title 10 of the *Code of Federal Regulations* until a permanent solution is implemented. The NRC has reviewed OPPD's letter dated November 18, 2005, with respect to filling the containment to the top of the hot leg using HPSI suction on the safety injection refueling water tank (SIRWT). Please address the following issues related to this approach:

- 1) What are the physical stresses on the containment building as result of the higher containment water levels using this approach?
- 2) OPPD stated that it would "enhance procedures to identify equipment and instrumentation that could be affected by flooding the containment above the flood level assumed for equipment qualification," but did not list this equipment and instrumentation and any measures to preserve their functionality, or deal with their malfunction,
- 3) OPPD should describe its systems or methods for measuring water level "above the maximum water level at the start of recirculation,"
- 4) List the hierarchy of water sources for SIRWT refill, or discuss the flow paths and flow rates which could be achieved in accomplishing refill, and
- 5) Discuss the actual refill flow rates versus the required refill flow rates, and resultant SIRWT water levels at the various times during which this direct injection lineup would be used in lieu of the recirculation mode (e.g., does OPPD show that the SIRWT does not go empty while HPSI pump suction is required).

- 6) How is boron concentration in the reactor coolant maintained during long-term cooling using this approach? Identify what sources of borated water would be available to refill the SIRWT, or how boric acid will be injected into the reactor coolant system to provide reasonable assurance that sufficient boron concentration is maintained to keep the reactor subcritical post-loss-of-coolant accident? Further, what is the effect of continuous injection of water from the SIRWT on boron precipitation (since the temperature of the injected water will be less than that of the containment sump assumed in previous boron precipitation analyses)? Could increased boron precipitation effect the ability of the reactor to remain subcritical and contribute to fuel damage due to a localized blockage of flow paths around the fuel assemblies/rods?

Ft. Calhoun Station, Unit 1

cc:

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January 2006