

April 10, 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 NO. 1 RE: RESPONSE TO REQUEST FOR AN EXTENSION TO THE COMPLETION DATE FOR CORRECTIVE ACTIONS TAKEN IN RESPONSE TO 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:

In a letter dated November 18, 2005, Omaha Public Power District (OPPD) provided information to the NRC regarding how it has addressed Information Notice 2005-26, "Results of Chemical Effects Head Loss Tests in a Simulated PWR Sump Pool Environment," for its Fort Calhoun Station, Unit 1 (FCS). The letter also requested an extension of time for completion of FCS sump modifications and corrective actions to address Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," from December 31, 2007, to the end of the FCS 2008 refueling outage. OPPD has stated that this outage is scheduled to begin in April 2008.

OPPD's letter listed five corrective measures to be completed in the FCS fall 2006 refueling outage, including removal of significant quantities of calcium silicate insulation material from containment. Even with the removal of significant quantities of calcium silicate insulation, FCS will continue to have a large amount of calcium silicate insulation in its containment. As noted in Information Notice 2005-26, research test results from a simulated containment-sump-pool environment containing phosphate and dissolved calcium indicate that this environment can rapidly produce a calcium phosphate precipitate that, if transported to a fiber-bed-covered screen, can produce significant head loss at the sump screen.

In its letter, OPPD also described the following existing procedural guidance it has implemented, as interim compensatory measures to support its extension request:

- 1) to shut down, 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) if HPSI suction via the containment sump strainers in the recirculation mode is lost, to continuously refill the safety injection refueling water tank (SIRWT) from a "hierarchy of sources," and re-align the HPSI to draw a suction on the SIRWT to allow continuous injection into the reactor coolant system. This lineup would continue in operation until the containment is filled to the top of the hot leg, at which time the reactor would be placed in the shutdown cooling mode of operation.

OPPD stated in its November 18, 2005, letter that its strategy for complying with Generic Letter 2004-02 was provided in its August 31, 2005, followup response to the Generic Letter. This strategy has been to “procure sump strainers with sufficient margin to accommodate any chemical effects that were identified by industry testing.” OPPD stated in its November 18, 2005, letter 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 the 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.

OPPD did not commit to any new, focused interim compensatory measures to mitigate post-LOCA sump pool calcium phosphate levels (e.g., removal or sequestration of either the TSP pH buffer or the large amount of calcium silicate insulation remaining after the FCS fall 2006 outage); nor did OPPD commit to installing a temporary strainer larger than the existing one. Rather, OPPD listed a variety of chemical-effects tests and evaluations that may be conducted in support of possible future modifications.

In its letter dated January 20, 2006, OPPD provided detailed information on its HPSI suction/SIRWT refill mode of injection. Subsequently, in its letter dated February 17, 2006, OPPD provided a revised description with much more detailed information on that capability. An extensive amount of time and staff resources would be necessary to resolve technical questions regarding the adequacy of this capability as an interim measure to support an extension request.

The NRC notes that licensees have been aware for some time of the need to address issues associated with Generic Letter 2004-02 by December 31, 2007, and that 21 months remain before that date. While the NRC has encouraged implementation of procedural changes as interim measures to reduce risk while actions are taken to resolve sump clogging issues, the circumstances at FCS warrant additional physical improvements to the emergency core cooling system (ECCS) sump and additional measures to remove problematic materials to minimize the risk of degraded ECCS functions during the extension period.

Considering the above facts and conclusions, the NRC denies OPPD’s request for an extension of the FCS Generic Letter 2004-02 GSI-191 sump modifications and corrective actions completion due date from December 31, 2007, to the end of the FCS 2008 refueling outage. If you have any comments or questions regarding this letter, please contact Alan Wang at (301) 415-1445.

Sincerely,

**/RA/**

Catherine Haney, Director  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-285

cc: See next page

OPPD stated in its November 18, 2005, letter that its strategy for complying with Generic Letter 2004-02 was provided in its August 31, 2005, followup response to the Generic Letter. This strategy has been to “procure sump strainers with sufficient margin to accommodate any chemical effects that were identified by industry testing.” OPPD stated in its November 18, 2005, letter 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 the 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.

OPPD did not commit to any new, focused interim compensatory measures to mitigate post-LOCA sump pool calcium phosphate levels (e.g., removal or sequestration of either the TSP pH buffer or the large amount of calcium silicate insulation remaining after the FCS fall 2006 outage); nor did OPPD commit to installing a temporary strainer larger than the existing one. Rather, OPPD listed a variety of chemical-effects tests and evaluations that may be conducted in support of possible future modifications.

In its letter dated January 20, 2006, OPPD provided detailed information on its HPSI suction/SIRWT refill mode of injection. Subsequently, in its letter dated February 17, 2006, OPPD provided a revised description with much more detailed information on that capability. An extensive amount of time and staff resources would be necessary to resolve technical questions regarding the adequacy of this capability as an interim measure to support an extension request.

The NRC notes that licensees have been aware for some time of the need to address issues associated with Generic Letter 2004-02 by December 31, 2007, and that 21 months remain before that date. While the NRC has encouraged implementation of procedural changes as interim measures to reduce risk while actions are taken to resolve sump clogging issues, the circumstances at FCS warrant additional physical improvements to the emergency core cooling system (ECCS) sump and additional measures to remove problematic materials to minimize the risk of degraded ECCS functions during the extension period.

Considering the above facts and conclusions, the NRC denies OPPD’s request for an extension of the FCS Generic Letter 2004-02 GSI-191 sump modifications and corrective actions completion due date from December 31, 2007, to the end of the FCS 2008 refueling outage. If you have any comments or questions regarding this letter, please contact Alan Wang at (301) 415-1445.

Sincerely,  
**/RA/**  
 Catherine Haney, Director  
 Division of Operating Reactor Licensing  
 Office of Nuclear Reactor Regulation

Docket No. 50-285

cc: See next page

**DISTRIBUTION:**

PUBLIC

LPLIV Reading

RidsNrrAdes (BSheron)

RidsNrrPMLWhitney

RidsNrrPMJHopkins

RidsNrrPMAWang

RidsNrrDssSsib (MScott)

RidsNrrDorLplg (DTerao)

RidsNrrLALFeizollahi

RidsOgcRp

RidsAcrcAcnwMailCenter

RidsRgn4MailCenter (DGraves)

RArchitzel

Slu

RidsNrrDss (JHannon/TMartin)

**ADAMS ACCESSION NUMBER: ML060100141**

**NRR-106**

**OFFICIAL RECORD COPY**

OFFICE	LPL4/PM	LPL4/LA	DSS/D	LPL4/BC	DORL/D
NAME	AWang:sp	LFeizollahi	TMartin	DTerao	CHaney
DATE	4/7/06	4/7/06	4/5/06	4/7/06	4/10/06

Ft. Calhoun Station, Unit 1

cc:

Winston & Strawn

ATTN: James R. Curtiss, Esq.

1700 K Street, N.W.

Washington, DC 20006-3817

Chairman

Washington County Board of Supervisors

P.O. Box 466

Blair, NE 68008

Mr. John Hanna, Resident Inspector

U.S. Nuclear Regulatory Commission

P.O. Box 310

Fort Calhoun, NE 68023

Regional Administrator, Region IV

U.S. Nuclear Regulatory Commission

611 Ryan Plaza Drive, Suite 400

Arlington, TX 76011-4005

Ms. Julia Schmitt, Manager

Radiation Control Program

Nebraska Health & Human Services R & L

Public Health Assurance

301 Centennial Mall, South

P.O. Box 95007

Lincoln, NE 68509-5007

Mr. David J. Bannister, Manager

Fort Calhoun Station

Omaha Public Power District

Fort Calhoun Station FC-1-1 Plant

P.O. Box 550

Fort Calhoun, NE 68023-0550

Mr. Joe L. McManis

Manager - Nuclear Licensing

Omaha Public Power District

Fort Calhoun Station FC-2-4 Adm.

P.O. Box 550

Fort Calhoun, NE 68023-0550

Mr. Daniel K. McGhee

Bureau of Radiological Health

Iowa Department of Public Health

Lucas State Office Building, 5th Floor

321 East 12th Street

Des Moines, IA 50319

April 2006