

January 18, 2008

Mr. David J. Bannister
Site Director
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 REGARDING LICENSE AMENDMENT REQUEST FOR
PROPOSED TECHNICAL SPECIFICATION CHANGES FOR MODIFICATION
OF CONTAINMENT SPRAY SYSTEM ACTUATION LOGIC (TAC NO. MD6204)

Dear Mr. Bannister:

By letter dated July 30, 2007, Omaha Public Power District submitted a license amendment request for the Fort Calhoun Station, Unit 1. The license amendment proposed to modify the containment spray system actuation logic to preclude automatic start of the containment spray pumps for a loss-of-coolant accident.

The accompanying AREVA portion of the submittal states that future Gothic computer code versions will be used. The NRC expects that GOTHIC calculations will be done with approved applications of the code. The use of a different version of GOTHIC by OPPD must satisfy the criteria of 10 CFR 50.59 to determine whether NRC prior review and approval is required. Typically, use of a different application of GOTHIC, as suggested by AREVA, may require NRC approval depending on the application of the plant-specific request.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information provided and determined that additional information is needed to complete our review. The additional information being requested is enclosed and was discussed with Mr. Thomas Matthews and others of your staff on November 19, 2007. As discussed with Mr. Matthews, the NRC staff is requesting a response within 30 days of receipt of this letter. If you have any questions, please contact me at (301) 415-5723.

Sincerely,
/RA/

Michael T. Markley, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosure: Request for Additional Information

cc w/encl: See next page

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Docket No. 50-285
Enclosure: Request for Additional Information
cc w/encl: See next page DISTRIBUTION:

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ADAMS Accession No.: ML080100010

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| OFFICE | LPL4/PM | LPL4/LA | LPL4/BC |
| NAME | MMarkley | JBurkhardt | THiltz |
| DATE | 1/16/08 | 1/10/2008 | 1/18/08 |

OFFICIAL RECORD COPY

Ft. Calhoun Station, Unit 1

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REQUEST FOR ADDITIONAL INFORMATION

OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT 1

DOCKET NO. 50-285

By letter dated July 30, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072150293), the Omaha Public Power District (OPPD, the licensee) submitted a license amendment request for the Fort Calhoun Station, Unit 1 (FCS). The licensee also submitted proprietary information (ADAMS Accession No. ML072150309), in support of this request, that is not publicly available. The license amendment proposed to modify the containment spray system actuation logic to preclude automatic start of the containment spray pumps for a loss-of-coolant accident.

The Nuclear Regulatory Commission (NRC) staff has reviewed the OPPD submittal and determined that additional information is required to complete the staff's evaluation. The following information was discussed with Mr. Thomas Matthews and others of your staff on November 19, 2007:

1. Updated Safety Analysis Report (USAR) Section 9.7.7 for component cooling water (CCW) system states that "[t]he equipment, except for the piping inside of the containment, is accessible for inspection and maintenance at all times."
 - a. For the safety-related CCW system piping inside the containment that supplies water to the containment coolers and is not accessible as per USAR Section 9.7.7, please explain how and at what frequency the piping is subjected to inservice inspection (ISI).
 - b. Please justify any deviations from ISI requirements for this piping.
2. Please provide a list of all the differences between the present GOTHIC model used for containment analysis and the proposed GOTHIC containment model given in the license amendment request and list all conservatisms in the proposed model. In addition, please provide justification for any differences between the two models.
3. Please describe the method of controlling the fouling and/or crud buildup and tube plugging in the cooling coils of the containment coolers so that cooler heat transfer characteristics, such as effectiveness, is maintained above analytical values.
4. FC07247 Table 2
 - a. Please verify that Table 2 applies to the high-pressure safety injection (HPSI) pumps.
 - b. The NRC staff would prefer to not credit a given amount of containment accident pressure (e.g., 8.99 feet) but rather to simply be assured that

there is margin between the calculated containment accident pressure (conservatively minimized) and the pressure necessary to provide adequate available NPSH [net positive suction head] (calculated conservatively). Please provide curves of containment accident pressure as a function of time and the accident pressure necessary to provide adequate available NPSH.

5. USAR Section 6.2.2

USAR Section 6.2.2 states that a preferred method of operation in the recirculation mode is to divert containment spray water to the suction of the HPSI pumps. Please verify that, under the proposed change, when the spray pumps are supplying flow to the HPSI pumps, they are not also spraying into the containment.

6. FC07247 Section 3.5

- a. Why were the NPSH analyses performed with the time of transition at recirculation actuation signal (RAS) and the stored energy dissipation rates calculated using the existing method?
- b. Section 3.5 states that the sump temperatures without containment spray are less than the sump temperatures at RAS from the analysis of record (AOR) with containment spray. Please explain operation of the containment spray including cooling with the shutdown coolers.
- c. What assumptions are made of the heat transfer between the sump water and the containment atmosphere?

7. FC07247 Section 3.6

Why is the post-RAS peak in containment vapor temperature lower than the pre-RAS peak regardless of spray operation?

8. FC07247 Section 2

This section states that extended RELAP5 analysis performed beyond 1000 seconds could be analyzed using the reduced uncertainty in decay heat.

- a. Please explain more specifically when this reduced uncertainty would be applied or commit to specifying the uncertainty in all future FCS containment calculations.
- b. Is the reduction in uncertainty used throughout the FC07247 Revision 0 calculations?

9. FC07247 Section 3

Please explain why the limiting short-term cases are necessarily the limiting cases for the long term.

10. FC07247 Section 3.4

- a. Section 3.4 indicates that credit was taken for powering a second CCW in 30 seconds. It is stated that the increase CCW flow increases the heat transfer capability of the containment air coolers (CACs) but that a conservatively low heat removal capacity of the single train of CACs is maintained. Please explain what is meant by these statements.
- b. If the heat capacity of the CAC is increased, how is this modeled in the calculation?

11. FC07247 Figures 15 and 16

- a. Explain why the long-term vapor pressure is lower for the "no spray" case than for the AOR case with containment spray.
- b. Is the CAC modeled for the AOR case?

12. Attachment 1 to OPPD letter dated July 30, 2007

- a. Please explain why the current analysis with containment spray remains bounding for equipment qualification (EQ).
- b. Why is the safety injection pump room current calculation bounding?
- c. Attachment 1 Page 26 states that the final EQ analyses will be completed by October 1, 2007. Please provide any changes from the discussion in the July 30, 2007 letter.

13. Technical Specification 3.6(3)e

- a. Please explain why a pressure drop of 2 inches of water was selected.
- b. What method will be used to measure the pressure drop?

14. Regarding setpoint changes, please explain why the loop uncertainty for this new engineered safety features function has not been affected. Please provide diagrams and supporting discussion for the new containment spray actuation logic.