UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

ACRSR-2054

October 9, 2003

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: REPORT ON THE SAFETY ASPECTS OF THE LICENSE RENEWAL APPLICATION FOR THE FORT CALHOUN STATION, UNIT 1

Dear Chairman Diaz:

During the 506th meeting of the Advisory Committee on Reactor Safeguards on October 1-3, 2003, we completed our review of the License Renewal Application (LRA) for the Fort Calhoun Station, Unit 1 and the related final Safety Evaluation Report (SER) prepared by the NRC staff. Our Plant License Renewal Subcommittee reviewed this application and the staff's initial SER during a meeting on June 11, 2003. During our review, we had the benefit of discussions with representatives of the NRC staff and Omaha Public Power District (OPPD or the applicant). We also had the benefit of the documents referenced.

CONCLUSION AND RECOMMENDATION

1) The programs instituted by OPPD to manage age-related degradation are appropriate and provide reasonable assurance that Fort Calhoun can be operated in accordance with its current licensing basis for the period of extended operation without undue risk to the health and safety of the public.

2) The OPPD application for renewal of the operating license for Fort Calhoun should be approved.

BACKGROUND AND DISCUSSION

This report fulfills the requirement of 10 CFR 54.25, which states that the ACRS should review and report on all license renewal applications. Fort Calhoun is a single unit, 1500 MWt Combustion Engineering pressurized water reactor. In its application, OPPD requested renewal of the operating license for Fort Calhoun for 20 years beyond the current license term, which expires August 9, 2013. The Fort Calhoun LRA is the first to be prepared in accordance with the Generic Aging Lessons Learned report.

The Fort Calhoun final SER documents the results of the staff's review of the information submitted by the applicant, including commitments that were necessary to resolve open items identified by the staff in the initial SER. In particular, the staff reviewed the completeness of the applicant's identification of structures, systems, and components (SSCs) that are subject to

aging management; the integrated plant assessment process; the applicant's identification of the possible aging mechanisms associated with passive, long-lived components; and the adequacy of the applicant's aging management programs.

The staff also conducted inspections at Fort Calhoun, including an audit of the adequacy of the scoping and screening methodology and its implementation to ensure that SSCs within the scope of license renewal have been appropriately identified; an inspection of the aging management programs to confirm that existing programs are functioning well and to examine the applicant's plans for establishing new and enhanced aging management programs; and a walkdown of plant systems to assess how the systems are being maintained.

On the basis of our review of the final SER, the LRA, and the inspection reports, we conclude that the process implemented by the applicant to identify SSCs that are within the scope of license renewal was effective, the applicant performed a comprehensive aging management review of such SSCs, and the staff and the applicant appropriately identified all SSCs that are within the scope of license renewal. We agree with the staff's conclusion that all open and confirmatory items have been closed appropriately and there are no issues that preclude renewal of the operating license for Fort Calhoun.

Buckling of the containment liner plate has occurred in a small localized area. The applicant has analyzed this condition and concluded that this buckling does not affect the functionality of the containment liner plate. We agree with the staff that this issue is not an unanalyzed age-related issue.

The Fort Calhoun Alloy 600 Inspection Program includes provisions and commitments for inspecting reactor pressure vessel (RPV) head penetration nozzles. The applicant has performed bare metal visual inspection of the RPV head and found no evidence of leakage. The applicant intends to replace the RPV head, pressurizer, and steam generators in 2006. The applicant will continue to participate in the industry program for assessing and managing primary water stress corrosion cracking (PWSCC) of Alloy 600 and Alloy 82/182 welds, and has committed to perform inspections as recommended by this program. Based on the applicant's responses to related NRC bulletins and its commitment to participate in the industry's program for assessing and managing PWSCC of the RPV head penetration nozzles, there is reasonable assurance that the integrity of the RPV head will be adequately monitored and maintained.

Between 1988 and 1990, the Fort Calhoun Thermal Shield Monitoring Program identified loosening of the positioning pins for the thermal shield. During the 1992 refueling outage, seven lower and four upper pins were replaced. These actions reduced vibrations back to normal levels, and no abnormal vibration has been detected since 1992. In order to manage loss of preload of the positioning pins during the period of extended operation, the applicant has included the existing Thermal Shield Monitoring Program in the Reactor Vessel Internal Inspection Program. Based on the past success of the Thermal Shield Monitoring Program in detecting loss of preload, the applicant has not supplemented this Program with a loose parts monitoring program. We agree with the applicant and the staff that a loose parts monitoring program for thermal shield bolting is not required because the Thermal Shield Monitoring Program has been shown to be capable of early identification of loss of preload so as to preclude potential damage to the RPV internals.

The applicant and the staff have identified plausible aging effects associated with passive, long-lived components. Adequate programs have been established to manage the effects of aging

so that Fort Calhoun can be operated in accordance with its current licensing basis for the period of extended operation without undue risk to the health and safety of the public.

Sincerely,

/RA/

Mario V. Bonaca
Chairman

References:

1. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the License Renewal of Fort Calhoun Station, Unit 1," September 2003.
2. Letters dated January 9, 2002 and April 5, 2002, from W. G. Gates, Omaha Public Power District to U.S. Nuclear Regulatory Commission, transmitting the Application to Renew the Operating License of Fort Calhoun Station, Unit 1.
3. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report with Open Items Related to the License Renewal of Fort Calhoun Station, Unit 1," April 2003.
4. NRC Inspection Report 50-285/02-07, “Scoping and Screening,” dated December 20, 2002.
5. NRC Inspection Report 50-285/03-07, “Aging Management Program Review,” dated March 20, 2003.
6. Fort Calhoun Station, Unit 1 License Renewal Audit Report, dated April 9, 2003.