



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

March 20, 2008

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: REPORT ON THE SAFETY ASPECTS OF THE LICENSE RENEWAL
APPLICATION FOR THE JAMES A. FITZPATRICK NUCLEAR POWER PLANT

Dear Chairman Klein:

During the 550th meeting of the Advisory Committee on Reactor Safeguards, March 6-7, 2008, we completed our review of the license renewal application for the James A. FitzPatrick Nuclear Power Plant (JAFNPP) and the final Safety Evaluation Report (SER) prepared by the NRC staff. Our Plant License Renewal Subcommittee also reviewed this matter during a meeting on September 5, 2007. During these reviews, we had the benefit of discussions with representatives of the NRC staff and the applicant, Entergy Nuclear Operations, Inc., (ENO). We also had the benefit of the documents referenced. This report fulfills the requirements of 10 CFR 54.25 that the ACRS review and report on all license renewal applications.

CONCLUSION AND RECOMMENDATION

1. The programs established and committed to by the applicant to manage age-related degradation provide reasonable assurance that JAFNPP 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 ENO application for renewal of the operating license of JAFNPP should be approved.

BACKGROUND AND DISCUSSION

JAFNPP is a General Electric boiling water reactor-4 (BWR-4) with a Mark-1 containment. The current power rating of 2536 MWt includes a 4 percent power uprate that was implemented in 1996. ENO requested renewal of the JAFNPP operating license for 20 years beyond the current license term, which expires on October 17, 2014.

In the final SER, the staff documented its review of the license renewal application and other information submitted by ENO and obtained during the audits and inspections conducted at the plant site. The staff reviewed the completeness of the applicant's identification of structures, systems, and components (SSCs) that are within the scope of license renewal; the integrated plant assessment process; the applicant's identification of the plausible aging mechanisms associated with passive, long-lived components; the adequacy of the applicant's Aging Management Programs (AMPs); and the identification and assessment of time-limited aging analyses (TLAAs) requiring review.

In the JAFNPP license renewal application, ENO identified the SSCs that fall within the scope of license renewal and performed an aging management review for these SSCs. Based on this review, the applicant will implement 36 AMPs for license renewal including existing, enhanced, and new programs.

The JAFNPP application either demonstrates consistency with the Generic Aging Lessons Learned (GALL) Report or documents deviations to the specified approaches in this report. The JAFNPP application includes a significant number of exceptions to the approaches specified in the GALL Report. We reviewed these exceptions and agree with the staff that they are acceptable. Other recent license renewal applications have exhibited a similar trend toward an increasing number of exceptions to the GALL Report. The staff agrees that future updates of the GALL Report should incorporate alternative approaches which are used by the industry and have been approved by the staff. This will reduce the number of exceptions to the GALL Report in future applications and will facilitate the staff review.

The staff conducted license renewal audits and site inspections. The audits verified the appropriateness of the scoping and screening methodology, AMPs, aging management review, and TLAAs. The site inspections verified that the license renewal requirements are appropriately implemented. Based on the audits and inspections, the staff concludes in the SER that the proposed activities will reasonably manage the effects of aging of SSCs identified in the application and that the intended functions of these SSCs will be maintained during the period of extended operation. We agree with this conclusion.

During our meetings with the staff and the applicant, we reviewed the physical condition of the drywell shell of the Mark 1 containment of JAFNPP and the associated AMPs. Aging of the drywell shell and torus of JAFNPP will be managed through the use of the American Society of Mechanical Engineers (ASME) Code Section XI, Subsection IWE Program. This program provides for inspection of primary containment components and the containment vacuum breaker system piping and components. The aging effects are managed by periodic sampling inspections, evaluation of inspection results, and repair of any significant degradation. Drywell monitoring includes periodic boroscopic inspections of the sand cushion area, visual inspection of the interior drywell caulk seal, and inspection of the drywell interior coating system. The JAFNPP drywell design minimizes the potential for water intrusion and includes an alarm system that annunciates in the control room if leakage from the refueling cavity occurs during refueling. The applicant stated that the plant has not experienced occurrences of leakage through the refueling bellows into the area monitored by the air gap leakage detection system. The applicant stated, and the NRC inspectors confirmed, that the JAFNPP drywell shell is in good physical condition.

In June 2005, a through-wall leak in the JAFNPP torus shell was identified. The leak was due to a 4.5 inch crack located in the same bay as the high-pressure coolant injection (HPCI) steam exhaust discharge pipe. The root cause of the flaw was vibration fatigue from HPCI steam condensation oscillation loading. Follow-up torus inspections identified similar flaws in two other locations in the same bay. Corrective action included repair of the flaws and the installation of a HPCI steam exhaust sparger assembly that directs steamflow away from the torus shell. The sparger significantly reduces steam condensation oscillation loads on the torus shell.

Pitting in the wetted area of the torus shell was identified in 1998 when the torus was drained to replace the emergency core cooling system suction strainers. Further inspection of the torus identified pitting in ten areas in four of the 16 torus bays. The pitting occurred at locations that had experienced some degradation of the original coating. The pitted areas have not been

re-coated. They are considered as leading indicators of torus shell condition and are being monitored periodically with ultrasonic testing and visual inspection. The staff and the NRC inspection team reviewed the JAFNPP containment inservice inspection program and concluded that ENO's program includes appropriate requirements for continued inspection of the torus, evaluation of observed degradation, and prediction of remaining service life. We concur with this conclusion.

The applicant identified the systems and components requiring TLAAAs and reevaluated them for the period of extended operation. The staff concluded that the applicant has provided an adequate list of TLAAAs. Further, the staff concluded that in all cases the applicant has met the requirements of the license renewal rule by demonstrating that the TLAAAs will remain valid for the period of extended operation, or that the TLAAAs have been projected to the end of the period of extended operation, or that the aging effects will be adequately managed for the period of extended operation. We concur with the staff's conclusion that JAFNPP TLAAAs have been properly identified and that the required criteria will be met for the period of extended operation.

We agree with the staff that there are no issues related to the matters described in 10 CFR 54.29(a)(1) and (a)(2) that preclude renewal of the operating license for JAFNPP. The programs established and committed to by ENO provide reasonable assurance that JAFNPP 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. The ENO application for renewal of the operating license for JAFNPP should be approved.

Sincerely,

/RA/

William J. Shack,
Chairman

REFERENCES

1. Letter dated July 31, 2006, from P. Dietrich, Entergy Nuclear Operations, Inc. to U.S. Nuclear Regulatory Commission, transmitting the Application to Renew the Operating License of James A. FitzPatrick Nuclear Power Plant, (ML062160491).
2. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report, Related to the License Renewal of James A. FitzPatrick Nuclear Power Plant, " February 2008 (ML080250372).
3. Letter dated June 19, 2007 from N. Le, U.S. Nuclear Regulatory Commission to M. Kansler, Entergy Nuclear Operations, Inc., transmitting the Audit Summary Report for Plant Aging Management Reviews and Programs for the James A. FitzPatrick Nuclear Power Plant on License Renewal Application, (ML071580049).
4. NRC License Renewal Inspection Report 05000333/2007007, James A. FitzPatrick Nuclear Power Plant, dated August 2, 2007, (ML072140637).
5. U.S. Nuclear Regulatory Commission, NUREG-1801, Volumes 1 & 2, Revision 1, "Generic Aging Lessons Learned Report," September 2005.

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The applicant identified the systems and components requiring TLAA's and reevaluated them for the period of extended operation. The staff concluded that the applicant has provided an adequate list of TLAA's. Further, the staff concluded that in all cases the applicant has met the requirements of the license renewal rule by demonstrating that the TLAA's will remain valid for the period of extended operation, or that the TLAA's have been projected to the end of the period of extended operation, or that the aging effects will be adequately managed for the period of extended operation. We concur with the staff's conclusion that JAFNPP TLAA's have been properly identified and that the required criteria will be met for the period of extended operation.

We agree with the staff that there are no issues related to the matters described in 10 CFR 54.29(a)(1) and (a)(2) that preclude renewal of the operating license for JAFNPP. The programs established and committed to by ENO provide reasonable assurance that JAFNPP 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. The ENO application for renewal of the operating license for JAFNPP should be approved.

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From: William J. Shack, Chairman
ACRS

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