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

November 15, 2018

The Honorable Kristine L. Svinicki
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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

Dear Chairman Svinicki:

During the 658th meeting of the Advisory Committee on Reactor Safeguards (ACRS), November 1-2, 2018, we completed our review of the license renewal application (LRA) for River Bend Station, Unit 1 (River Bend) and the final safety evaluation report prepared by the NRC staff. Our Plant License Renewal Subcommittee reviewed this matter during a meeting on September 20, 2018. During these reviews, we had the benefit of discussions with representatives of the staff and Entergy. We also had the benefit of the referenced documents. This report fulfills the requirement 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 Entergy to manage age-related degradation provide reasonable assurance that River Bend 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. Entergy's application for renewal of the operating license for River Bend should be approved.

BACKGROUND

The original River Bend design included River Bend, Unit 1 and River Bend, Unit 2. River Bend, Unit 2 was canceled on January 5, 1984. River Bend is located in West Feliciana Parish, Louisiana, approximately 24 miles northwest of Baton Rouge, Louisiana. River Bend is a boiling-water reactor with its nuclear steam supply system and turbine generator supplied by the General Electric Company. The containment is a General Electric Mark III design. The River Bend licensed core power level is 3091 megawatts thermal with a net power output of approximately 967 megawatts electric. The NRC issued the original construction permit for River Bend on March 25, 1977, and the operating license on November 20, 1985.

In its application, Entergy requests renewal of the operating license (Facility Operating License NPF-47) for a period of 20 years beyond the current expiration date of midnight, August 29, 2025.

DISCUSSION

In preparation for life extension at River Bend, Entergy has completed significant plant modifications. These include upgrading digital electrical hydraulic control system turbine controls, recoating underground circulating water piping, replacing inverters, fourth point feedwater heaters, and upgrading 480 volt load center breakers. Planned upgrades include turbine building chiller replacements, spent fuel pool neutron absorber upgrade, service water cooling heat exchanger refurbishment, and recirculation pump power cable replacement.

In its final safety evaluation report, the staff documented its review of the LRA and other information submitted by the applicant, and obtained through staff audits and inspections at the plant site. The staff reviewed the completeness of the identification of structures, systems, and components that are within the scope of license renewal. The staff also reviewed the integrated plant assessment process; the identification of plausible aging mechanisms associated with passive, long-lived components; the adequacy of the Aging Management Programs (AMPs); and the identification and assessment of Time-Limited Aging Analyses (TLAAs) requiring review.

The LRA identified the structures, systems, and components that fall within the scope of license renewal. The application demonstrates consistency with the Generic Aging Lessons Learned (GALL) Report and justifies deviations to the specified approaches in that report. The River Bend aging management programs are implemented in accordance with appropriate elements of the requirements of 10 CFR Part 50, Appendix B, specifically corrective actions, confirmation process, and administrative controls. The River Bend Quality Assurance Program applies to safety-related structures and components. Staff review of LRA development guidance and Entergy's documentation concluded that Entergy's quality assurance activities were adequate to ensure that LRA development activities were performed in accordance with the applicant’s license renewal program requirements.

Entergy will implement 43 AMPs for license renewal, comprised of 12 new programs and 31 existing programs. All 12 of the new programs are consistent with the GALL Report. Of the 31 existing programs, 10 are consistent with the GALL Report, 13 are consistent with enhancements, two are consistent with exceptions, five are consistent with enhancements and allowed exceptions, and one is a plant-specific program with enhancements (Periodic Surveillance and Preventive Maintenance). The LRA includes seven programs with allowed exceptions to the GALL Report. The programs with exceptions and enhancements are acceptable.

Our review recognizes the existence of cracking of the plant's core shroud and Entergy's actions to manage this degradation mechanism. Entergy's AMP to manage shroud cracking is guided by industry-accepted programs defined by the Boiling Water Reactor Vessel Internals Project, developed and implemented by boiling-water reactor owners worldwide. The NRC has reviewed and accepted these programs. We agree that this is the appropriate method to address this issue, and that Entergy's actions to monitor shroud cracking into the period of extended operation are acceptable.

The staff conducted license renewal audits and performed a license renewal inspection at River Bend. The audits verified the appropriateness of the scoping and screening methodology for AMPs, the appropriateness of the aging management review, and the acceptability of the TLAAs. The staff audit report demonstrated the validity of its conclusion that the River Bend Aging Management Program is mature. The license renewal inspection verified that the license renewal requirements are implemented appropriately. The audits and inspections were comprehensive and the corresponding reports are thorough.

Based on the audits, the inspection, and the staff reviews related to this LRA, the staff concluded that Entergy has demonstrated that the effects of aging at River Bend will be adequately managed so that the intended safety function(s) will be maintained consistent with the current licensing basis for the period of extended operation, as required by 10 CFR 54.21(a)(3). The staff's review of the LRA identified no open or confirmatory items.

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 River Bend. The programs established and the commitments made by Entergy provide reasonable assurance that River Bend 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 Entergy application for renewal of the operating license for River Bend should be approved.

Member Riccardella did not participate in this meeting.

Sincerely,

/RA/

Michael Corradini
Chairman

REFERENCES

1. Entergy Operations, Inc., “River Bend Station License Renewal Application,” May 25, 2017 (ML17153A282).

2. U.S. Nuclear Regulatory Commission, “Safety Evaluation Report Related to the License Renewal of River Bend Station, Unit 1,” July 2018 (ML18212A151).

3. U.S. Nuclear Regulatory Commission, NUREG-1801, “Generic Aging Lessons Learned (GALL) Report,” Revision 2, December 2010 (ML103490041).

4. U.S. Nuclear Regulatory Commission, “River Bend Station – NRC License Renewal Inspection Report 05000458/2018011,” May 7, 2018 (ML18127B169).

5. U.S. Nuclear Regulatory Commission, “Aging Management Programs Audit Report Regarding the River Bend, Unit 1, License Renewal Application Review (CAC No. MF9757),” January 29, 2018 (ML17346A732).

6. U.S. Nuclear Regulatory Commission, “Operating Experience Audit Report Regarding River Bend Station, Unit 1 License Renewal Application Review (CAC No. MF9757),” January 8, 2018 (ML17347A383).

7. U.S. Nuclear Regulatory Commission, “Scoping and Screening Audit Report Regarding the River Bend Station, Unit 1 – License Renewal Application Review (CAC No. MF9757),” January 8, 2018 (ML17348B142).

8. Entergy, “Revision 25 to the Updated Safety Analysis Report River Bend Station – Unit 1,” July 28, 2017 (ML17226A087).

9. U.S. Nuclear Regulatory Commission, NUREG-1800, “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants,” Revision 2, December 2010 (ML103490036).

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