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

May 14, 2024

The Honorable Christopher T. Hanson
Chair
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: REPORT ON THE SAFETY ASPECTS OF THE LICENSE RENEWAL APPLICATION REVIEW OF COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2

Dear Chair Hanson:

During the 715th meeting of the Advisory Committee on Reactor Safeguards (ACRS), April 30 through May 2, 2024, we completed our review of the license renewal (LR) application for the Comanche Peak Nuclear Power Plant, Units 1 and 2 (CPNPP), and the associated safety evaluation report prepared by staff. Our review considered actions by the licensee, Vistra Operations Company, LLC (Vistra), to extend the license of each unit by 20 years beyond the currently approved 40 years of licensed operation. During this review, we had the benefit of discussions with representatives of the staff and Vistra. We also had the benefit of the referenced documents. This report fulfills the requirement of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 54.25 that the ACRS review and report on all license renewal applications.

CONCLUSION AND RECOMMENDATION

1. The existing and new programs, combined with the commitments made by Vistra for managing age-related degradation, provide confidence that CPNPP can be operated in accordance with its current licensing basis for the Period of Extended Operation (PEO) with no adverse effect on the risk to the health and safety of the public.

2. The Vistra application for the LR of the operating licenses for CPNPP should be approved.

BACKGROUND

The CPNPP is a two unit generating station in Glen Rose, Texas. Each unit consists of a Westinghouse 4-loop pressurized water reactor with licensed output of 3612 megawatts thermal (MWt). The Nuclear Regulatory Commission (NRC) issued the initial operating licenses on February 8, 1990, for Unit 1, and February 2, 1993, for Unit 2. Both units were uprated using the Leading Edge Flow-Meter (LEFM) technology in 2001 and again in a stretch power uprate (SPU) in 2008.

Vistra is requesting renewal of the operating licenses for an additional 20 years beyond the expiration of their current licenses. The licenses would be extended to February 8, 2050, for Unit 1, and February 2, 2053, for Unit 2.

DISCUSSION

Vistra submitted a LR application for CPNPP in October 2022. Vistra applied lessons learned from previous applications, requests for additional information, and internal aging management program (AMP) experience in preparation of their application. An experienced, multidisciplinary team of corporate, site, and consultant personnel was assembled to develop the LR application. Vistra followed the guidance in Generic Aging Lessons Learned (GALL) Report, and the Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants (SRP-LR), resulting in a thorough LR application.

Vistra has been making improvements in the CPNPP facility based upon equipment performance monitoring. Many of these improvements were made to the power-producing portion of the plant, in part, due to the SPU. The original Unit 1 Steam Generators were replaced with an improved design. Unit 2 Steam Generators (of a different design) are the original equipment and have shown excellent integrity with only 0.56% of the tubes pugged. One prominent issue being monitored is vibration and loose parts wear on the tubes. The AMP adequately covers these and other known degradation mechanisms.

Vistra will implement 43 AMPs for LR, comprised of 32 existing programs and 11 new programs. Of the new programs, all are consistent with the GALL report. Of the 32 existing programs, five are consistent with the GALL report, 27 are consistent with enhancements and/or exceptions, and none are plant specific. The staff found the programs, including those with enhancements and exceptions, to be acceptable. There was extensive interaction dealing with spent fuel pool (SFP) leakage. There is a concern the leakage could affect the structural integrity of the SFP. The structural integrity AMP was enhanced to ensure that SFP leakage that could affect structural integrity is detected and rectified.

Vistra has demonstrated the effectiveness of their programs to maintain material condition, sustain system and equipment performance, and identify and implement improvements to ensure facility safety and reliability. Commitments within the LR application and in Vistra's responses to the staff audits and inspections provide confidence that these programs will be implemented effectively throughout the PEO. The detailed elements of the AMPs and related commitments are documented in the proposed Updated Final Safety Analysis Report supplement and will be managed through Vistra's commitment tracking program.

The staff reviewed Vistra's application for LR in accordance with the GALL and the SRP-LR guidance documents. Conformance with this guidance provides the bases for a staff conclusion that an applicant for a license renewal of 20 additional years beyond its current approved license for 40 years will have no adverse effect on the risk to the public throughout the PEO.

In the safety evaluation report, staff documented their review of the LR application, additional information submitted by Vistra, and information obtained through staff audits, inspections, and responses to requests for additional information. The staff conducted a regulatory audit on the technical details of the LR application during 2022 and 2023, as well as an LR inspection in September 2023. These activities evaluated the scoping of structures, systems, and components and verified the adequacy of the aging management review. The inspection also reviewed the acceptability of the plant-specific time-limited aging analyses. No safety-significant

findings were identified during the corresponding inspections and audits. The new programs augment the current facility monitoring and maintenance processes in place at CPNPP. It is reasonable to conclude the intended safety functions of the systems placed under the AMP programs will be maintained consistent with the CPNPP current licensing basis for the PEO, as required by 10 CFR 54.21(a)(3). The staff's review of the LR application as documented in the safety evaluation report, identified no open or confirmatory items. The staff imposed two license conditions. Both are consistent with other LRs to ensure the final safety analysis report is updated with a summary of programs and activities managing the effects of aging, and committed pre-PEO activities are completed and communicated to the NRC. We concur with the staff's safety evaluation regarding these issues.

SUMMARY

We conclude the Vistra application for the CPNPP license renewal meets the requirements described in 10 CFR 54.29(a)(1) and (a)(2). The existing and new programs combined with the commitments made by Vistra for managing age-related degradation provide confidence that CPNPP can be operated in accordance with its current licensing basis for the PEO with no adverse effect on the risk to the health and safety of the public. The Vistra application for the LR of the operating licenses for CPNPP should be approved.

Member Sunseri did not deliberate in the review of this application.

We are not requesting a formal response to this letter report.

Sincerely,

Walter L Kirchner Signed by Kirchner, Walter on 05/14/24

Walter L. Kirchner
Chair

REFERENCES

1. Vistra Operations Company, "Comanche Peak Nuclear Power Plant, Units 1 and 2, Docket Number 50-445 and 50-446 Facility Operating License Numbers NPF-87 and NPF-89 License Renewal Application," October 3, 2022 (ML22276A082).

2. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the License Renewal of Comanche Peak Nuclear Power Plant, Units 1 and 2," March 2024 (ML24078A230).

3. U.S. Nuclear Regulatory Commission, "Comanche Peak Nuclear Power Plant, Units 1 and 2 – Report for the Aging Management Audit Regarding the License Renewal Application Review (EPID No. L-2022-RNW-0018)," August 9, 2023 (ML23172A146).

4. U.S. Nuclear Regulatory Commission, "Breakout Questions, Aging Management Audit, Comanche Peak Nuclear Power Plant, Units 1 and 2 License Renewal Application, December 12, 2022 – May 18, 2023," August 9, 2023 (ML23172A147).

5. U.S. Nuclear Regulatory Commission, “Comanche Peak Nuclear Power Plant – License Renewal Inspection Report 05000445/2023013 and 05000446/2023013,” January 31, 2024 (ML24029A077).

6. 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).

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

8. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.188, “Standard Format and Content for Application to Renew Nuclear Power Plant Operating Licenses,” Revision 2, April 17, 2020 (ML20017A265).

9. Nuclear Energy Institute, NEI 14-12, “Aging Management Program Effectiveness,” December 31, 2014 (ML15090A665).

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