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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Ref 10 CFR50.55a

Subject: Comanche Peak Nuclear Power Plant (CPNPP)
Docket Nos. 50-445 and 50-446
Relief Request Application P-1, Inservice Testing (IST)

Dear Sir or Madam:

Pursuant to 10 CFR50.55(a)(z)(2), "Hardship without a compensating increase in quality and safety." Vistra Operations Company LLC (Vistra OpCo) hereby requests NRC approval of the proposed alternative to the applicable Inservice Testing (IST) code requirements described in the attachment to this letter.

Vistra OpCo requests approval of the attached relief request application P-1 by August 3, 2023.

This communication contains no new licensing basis commitments regarding Comanche Peak Units 1 and 2.

Should you have any questions, please contact Jim Barnette at (254) 897-5866 or James.Barnette@luminant.com.

Sincerely,

Jack C. Hicks

Attachment: IST Relief Request Application P-1

c (email) - Scott Morris, Region IV [Scott.Morris@nrc.gov]
Dennis Galvin, NRR [Dennis.Galvin@nrc.gov]
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IST Relief Request Application P-1

Title of Project:
RELIEF REQUEST P-1 - INSERVICE TESTING (IST)

Licensee:
Vistra Operations Company LLC (Vistra OpCo)

Licensee Contact:
JIm Barnette

Licensee Contact Phone Number:
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Plant Identification Number:
227551

Plant Name:
Comanche Peak Nuclear Power Plant (CPNPP)

Plant Units:
Unit 1 & 2

Docket Numbers:
50-445 and 50-446

License Numbers:
NPF-87 and NPF-89

Requested Completion Date:
August 3, 2023

Applicable Regulation and Inservice Inspection (ISI) or Inservice Testing (IST):
Select 10 CFR 50.55a(z)(2) IST

Proposed Alternative Number or Identifier:
P-1

Applicable American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, or ASME Operations and Maintenance (OM) Code, Edition and Addenda:
American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), 2017 Edition, no Addenda

ISI or IST Program Interval Number and start/end dates (as applicable):
IST Program Fourth Interval
Start Date: August 3, 2023
End Date: August 2, 2033

ASME Code Class
ASME Class 3

Applicable Components and or System Description (if applicable):
The Vents and Drains System Safeguards Building Sump Pumps (SBSPs):

CP1-WPAPSS-01	CP2-WPAPSS-01
CP1-WPAPSS-02	CP2-WPAPSS-02
CP1-WPAPSS-03	CP2-WPAPSS-03
CP1-WPAPSS-04	CP2-WPAPSS-04

Describe the Applicable Code Requirements:
ISTB-5200, Vertical Line Shaft Centrifugal Pumps, (a) *Duration of Tests*, paragraph (1) states, "For the Group A test and the comprehensive test, after pump conditions are as stable as the system permits, each pump shall be run at least 2 min. At the end of this time at least one measurement or determination of each of the quantities required by Table ISTB-3000-1 shall be made and recorded."

ISTB-3540, Vibration, paragraph (b), states, "On vertical line shaft pumps, measurements shall be taken on the upper motor-bearing housing in three approximately orthogonal directions, one of which is the axial direction.

ISTB-5221, Group A Test Procedure, states in part, that "Group A tests shall be conducted with the pump operating as close as practical to a specified reference point and within the variances from the reference point as described in this paragraph. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph."

ISTB-5223, Comprehensive Test Procedure, states in part, that "Comprehensive tests shall be conducted with the pump operating as close as practical to a specified reference point and within the variances from the reference point as described in this paragraph. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph."

Reason for Request:
Pursuant to 10 CFR 50.55a, Codes and standards, paragraph (z), Alternatives to codes and standards requirements, item (2), VISTRA Operations Co. LLC (Vistra OpCo) is providing this proposed alternative for testing the SBSPs' flow and vibration to ensure the operational readiness requirements of these pumps are met. The basis for the proposed alternative is that compliance with ISTB-5200(a)(1), ISTB-3540(b), ISTB-5221, and ISTB-5223, represents a hardship or unusual difficulty without a compensating increase in the level of quality or safety.

Brief Description of the Proposed Alternative (500 characters or less):
Alternative Pump Test – Pumping the same quantity of fluid along a repeatable system path while measuring flow and vibration. A baseline reference shall be established for flow and vibration. Alert and Required Action Limits for vibration will be established and maintained. Vibration will be measured in a single direction. The acceptance criteria for flow will be greater than the design flow. The flowrate delivered will be trended for detection of pump degradation.

Full Description of the Proposed Alternative:
The proposed test consists of the following: The sump will be filled to a predetermined level, and the pump will operate until the automatic low-level cutoff switch actuates. The sump will be pumped down rapidly (approximately 50 seconds) by one pump. Suction pressure will vary as sump level changes; therefore, the 2-minute stabilization time and differential pressure measurement are not achievable. The test will require pumping the same quantity of fluid along a repeatable system path while measuring flow and vibration. A baseline reference shall be established for flow and vibration. Alert and Required Action Limits for vibration will be established and maintained as per Table ISTB-5221-1, Vertical Line Shaft Centrifugal Pump Test Acceptance Criteria, for vertical line shaft centrifugal pumps. Vibration will be measured in a single direction due to the short pump run and the ability to acquire a single vibration reading during this time period. The acceptance criteria for flow will be greater than the design flow of 50 gpm. The flowrate delivered will be trended for detecting pump degradation and to ensure the SBSPs have adequate design margin.

Description of the Basis for Use:
To meet the operational readiness requirements for these pumps, a test can be performed that demonstrates the pump can meet its intended safety functions. This test would require that the pump start on the proper level switch actuation, determine that the pump is capable of delivering a minimum of 50 gpm to the Waste Holdup Tank, and have velocity-based vibration reading that is satisfactory. Differential pressure measurement is not required to show adequate pump performance. Differential pressure measurement creates additional radiation exposure to personnel because the sump is potentially contaminated. Pumping 50 gpm or more to the Waste Holdup Tank demonstrates that adequate head was developed to overcome system resistance with greater confidence that the ASME OM Code requirements, for operational readiness have been met. The required head to pump to the Waste Holdup Tank is greater than the required head to discharge to the Floor Drain Tank, which is the normal lineup.

In addition, Regulatory Guide (RG) 1.175, "An Approach for Plant-Specific, Risk-Informed Decision-making: Inservice Testing," states that for LSSCs, like the SBSPs, the testing may be less rigorous. This philosophy of demonstrating that the SBSPs have adequate design margin (greater than 50 gpm) is consistent with RG 1.175 testing strategy for LSSCs.

The SBSPs are small capacity pumps, compared to other pumps in the plant, with a capacity of greater than 50 gpm. The SBSPs are designed to pump a working volume and not expected to run continuously. The SBSPs run intermittently in their normal and emergency modes. They turn on following a high sump level actuation and turn off following low sump level actuation. Trending flow against the required flowrate of 50 gpm will provide adequate means of demonstrating acceptable pump operation.

The SBSPs are of low safety significance and are not explicitly modeled in the Probabilistic Risk Assessment (PRA) for internal events analysis. As stated previously, the SBSPs are installed to prevent flooding from a LOCA. Alarms associated with these pumps alert the operator of potential leakage in the Safeguards Building and mitigate the consequences of the leakage. The proposed alternate test will provide reasonable assurance that the sump pumps will perform their intended functions and not impact the assumptions in the PRA assessment.

The basis for classifying the SBSPs as active is they mitigate continuous system leakage in the Safeguard Building at a flow rate of 1 gpm. These pumps also provide credited positive indication to the Control Room of flooding in the Safeguards Building from ESF equipment. The performance requirements for these pumps are unlike any other pumps in the Risk-Informed Inservice Testing Plan. These pumps are not required to provide a significant flow at a required head to prevent or mitigate any accident or maintain the plant in a safe shutdown condition. Modifications to enable testing in compliance with the

ASME OM Code would not result in an increase to safety.

The proposed alternate test simulates expected pump operation and demonstrates the pumps' capability to meet the unique performance requirements of these pumps. Performance of this test will clearly demonstrate that the pumps can achieve their intended safety functions. There is no change to the design functions of the sump pumps. This proposed alternative impacts the testing criteria and does not impact the safety analysis as described in the Final Safety Analysis Report (FSAR).

25. If requesting an alternative based on 10 CFR 50.55a(z)(2), describe hardship or unusual difficulty without compensating increase in the level of quality and safety associated with compliance with applicable code requirement. For requests under 10 CFR 50.55a(z)(1), leave this section blank.
The Safeguards Building sump does not contain sufficient water inventory for the 2-minute duration at 80% or greater design flow as required by ISTB-5200(a)(1). The sump pumps are not designed with a recirculation line (mini-flow or test header) that allows a pump to be run continuously at design flow conditions. Due to the limited volume of water, the sump is emptied in approximately 50 seconds. The pumps do not have time to stabilize and subsequently CPNPP cannot meet the ASME OM ISTB-5200(a)(1) requirements.

Direct access to the SBSPs would be a significant burden since they are inside the sump and the sump is covered by a 1-inch thick steel plate. To run the pumps for greater than 50 seconds would require opening the sump and running water from a demineralized water source with temporary hoses. Performing this test would incur significant effort. The man-hours estimated to remove the plate, run demineralized water, and re-establish the design configuration is approximately 50 man-hours for each pump test versus approximately 9 man-hours for the proposed pump run of approximately 50 seconds.

Since the pumps are under a 1-inch thick steel plate, only the motors are accessible by workers. These are small motors with only one location for horizontal (MH), vertical (MV), and axial (MA). Motor inboard horizontal (MIH) and motor outboard horizontal (MOH) are the same point, MH. Hence, only the MH measurement (i.e., MIH), is taken for vibration. The 1-inch thick steel plate is stiff and will dampen any vibrations. The trending of three vibration readings at the same location would not provide any additional trending information beyond the current single MH measurement. During normal operations, these pumps are not used continuously. Therefore, the use of a single vibration reading as proposed by CPNPP, is an acceptable alternative to the ISTB-3540(b) requirement to measure vibration in three directions.

In addition, the SBSPs are located in a radiological area of the plant at elevation (EL.) 773, in both units. The radiological dose in the room will vary depending on what waste has been discharged into the sumps. If the waste is very radioactive, then the dose rate for workers performing the test could be high. More importantly; however, removing the steel access plate to access the sump will significantly increase the risk of worker contamination, since the sumps are highly contaminated.

There are no plant installed pressure or differential pressure instruments on the suction or discharge of the SBSPs. Previously, the SBSPs were tested by setting flow at 0 gpm (i.e., deadhead the pump) and differential pressure was calculated. The suction pressure was calculated by measuring an elevation between the sump cover and water level within the sump. This method was abandoned due to the concerns of the sump potentially being contaminated thereby keeping exposures as low as reasonably achievable (ALARA). The test method of dead heading the SBSPs is adverse to the condition of the pumps and is no longer performed.

The design of the SPSPs was previously reviewed and it was determined that significant modifications would have to be performed without any appreciable benefit to safety to enable testing in compliance with ASME OM ISTB-5200(a)(1), ISTB-5221, ISTB-5223, and ISTB-3540(b).

Proposed duration of the alternative:
This proposed alternative, upon approval, will be applied to the entire duration of the CPNPP Units 1 and 2 Risk-Informed Inservice Testing Plan for Pumps and Valves, Fourth Interval, which starts August 3, 2023, and ends on August 2, 2033.

Precedents:
This proposed alternative was previously approved for use at CPNPP as documented in NRC safety evaluation, "Comanche Peak Nuclear Power Plant, Units 1 and 2 – Request for Relief P-1 for Inservice Testing Plan for Pumps and Valves from American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants for the Third Interval of Inservice Testing Plan (TAC Nos. ME9259 and ME9260)" dated June 26, 2013 (ML13148A437).

References:
RG 1.175, "Plant-Specific, Risk-Informed Decision-making: Inservice Testing," dated June 2021 (ADAMS Accession No. ML21140A055).