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CP-20120880
TXX-12117

Ref. # 10CFR50.55a(a)(3)(i)

August 16, 2012

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

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT
DOCKET NOS. 50-445 AND 50-446
RELIEF REQUEST NO. P-1 FOR UNIT 1 AND UNIT 2 INSERVICE TESTING PLAN FOR
PUMPS AND VALVES (ASME OM CODE 2004 EDITION, THROUGH 2006 ADDENDA
THIRD INTERVAL START DATE: AUGUST 3, 2013)

- REFERENCES:**
1. Letter logged TXX-08113 dated September 8, 2008 from Rafael Flores to the NRC submitting Relief Request No. P-2 for the Unit 1 and Unit 2 Inservice Testing Plan for Pumps and Valves (ASME OM Code 1998 Edition, through 2000 Addenda; Interval Start Date: August 3, 2004, Second Interval) (ML082770065)
 2. NRC Letter dated July 23, 2009, from Michael T. Markley to Rafael Flores concerning Relief Request P-2, Inservice Testing Plan for Pumps and Valves for Second 10-Year Interval (TAC Nos. MD9722 and MD9723) (ML091620548)

Dear Sir or Madam:

Luminant Generation Company LLC (Luminant Power) requests relief from ASME OM Code 2004 Edition, through 2006 Addenda, for the testing of the Safeguards Building Sump Pumps at Comanche Peak Nuclear Power Plant (CPNPP) pursuant to 10CFR50.55a(a)(3)(i) for the third interval of the CPNPP Unit 1 and Unit 2 Inservice Testing Plan for Pumps and Valves.

Luminant Power had previously submitted this relief request for the second interval via Reference 1, and it had been approved by the NRC via Reference 2.

Luminant Power requests approval of this relief request by August 3, 2013.

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

Should you have any questions, please contact Mr. Jack Hicks at (254) 897-6725.

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A047
NRR

Sincerely,

Luminant Generation Company LLC

Rafael Flores

By: 
Fred W. Madden
Director, Oversight & Regulatory Affairs

Attachment: Relief Request P-1 (Third Interval Start Date: August 3, 2013)

c - E. E. Collins, Region IV
B. K. Singal, NRR
Resident Inspectors, Comanche Peak
Jack Ballard, ANIL, Comanche Peak

Luis Ponce
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1. **ASME Code Component(s) Affected**

Safeguards Building Sump Pumps

The Safeguards Building Sump Pumps (SBSPs) safety functions are to:

- (1) Detect and mitigate passive failures in the Emergency Core Cooling System (ECCS) and Containment Spray (CT) System post-LOCA, and
- (2) To prevent flooding of these engineered safety feature systems resulting from leakage after an accident.

The Safeguards Building sump pumps are classified as active pumps and are required to mitigate the consequences of assumed continuous system leakage (1 gpm) from flooding the Engineered Safety Featured (ESF) equipment. Additionally, the sump level instrumentation, in combination with pump operation, provides positive indication to the Control Room of ESF system leakage occurring outside containment. Specifically, the Reactor Operator is credited with noting that the SBSP turns on and stays on longer than a normal sump pump run; an Operator is dispatched to the scene; and the source of the leak is determined and isolated. The SBSPs are designed with a capacity of 50 gpm each. There are two sumps per unit servicing the ESF equipment. Each sump has two safety related SBSPs; each having a 50 gpm design capacity. Only the capacity of one of the two pumps is required to perform the safety function.

Pump Tag Numbers:

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

ASME Code Class 3

The sump pumps are vertical line shaft centrifugal pumps that are included in the Comanche Peak Nuclear Power Plant (CPNPP) Risk-Informed Inservice Testing (IST) Plan. These pumps are classified as low safety significant components (LSSCs) per Risk Informed Inservice Test Plan, and have a six-year staggered test frequency. The staggered test frequency results in one pump per Unit tested every 18 months.

Note: This relief request was previously submitted via CPNPP Letter TXX-09074 [ADAMS Accession No. ML091410446], and the subject Relief Request P-2 was authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year IST program interval [ADAMS Accession No. ML091620548].

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition, through 2006 Addenda.

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3. **Applicable Code Requirements**

ISTB-5200 (a)(1) Duration of Tests

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(b) Vibration

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

Group A tests shall be conducted with the pump operating at a specified reference point. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph.

ISTB-5223 Comprehensive Test Procedure

Comprehensive tests shall be conducted with the pump operating at a specified reference point. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph.

Note: ASME OM Code Subsections ISTB-3540(b) and ISTB-5223 were added since the previous approval of this request [ADAMS Accession No. ML091620548]. Subsection ISTB-5223 was added to clarify that the proposed test will be used in lieu of the Group A test and the Comprehensive test. Subsection ISTB-3540(b) was added to clarify that for the proposed test vibration will only be measured in a single direction.

4. **Reason for Request (10CFR50.55a(a)(3)(i))**

The reason for relief from ISTB-5200(a)(1) is because the Safeguards Building sump does not contain sufficient water inventory for 2 minutes duration at 80% or greater of design flow. 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.

The reason for relief from ISTB-3540(b) is the Safeguards Building sump does not contain sufficient water inventory for 2 minutes duration at 80% or greater of design flow. The SBSPs test lasts approximately 50 seconds before emptying the sump. Due to the short pump run (approximately 50 seconds) vibration will only be measured in a single direction.

The reason for relief from ISTB-5221 and ISTB-5223 is because there are no plant installed pressure or differential pressure instruments on the suction or discharge of the pump.

Previously the SBSPs were tested by setting flow at 0 gpm (i.e. dead head 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 ALARA concerns of the sump potentially being contaminated.

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 SBSPs has been reviewed and it was determined that significant plant modifications would have to be performed without any appreciable benefit to safety to enable testing in compliance with ASME OM ISTB-5200(a), ISTB-5221, ISTB-5223, and ISTB-3540(b).

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5. **Proposed Alternative and 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 (ALARA) 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.

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 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.

In addition, Regulatory Guide 1.175, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing," states that for Low Safety Significant Components (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 Regulatory Guide 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 Safeguard Building Sump Pumps as active is they mitigate continuous system leakage in the Safeguard Building at a flow rate of 1 gpm. These pumps also

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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 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 change impacts the testing criteria and does not impact the safety analysis as described in the FSAR.

Note: This relief request was previously submitted via CPNPP Letter TXX-09074 [ADAMS Accession No. ML091410446], and the subject Relief Request P-2 was authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year IST program interval [ADAMS Accession No. ML091620548]. The changes in technology for testing the affected components has not impacted the basis for relief previously requested, and remains unchanged in Section 4 and 5 for the CPNPP Unit 1 and Unit 2.

6. **Duration of Re-Approved 10 CFR 50.55a Request**

CPNPP is requesting permanent relief on the proposed test methodology for CPNPP Unit 1 and Unit 2 Risk-Informed Inservice Testing Plan for Pumps and Valves, Third Interval (starts August 3, 2013 and ends on August 2, 2023).

7. **References**

- 1) Luminant Letter TXX-09074 dated, May 14, 2009, from Rafael Flores to the NRC (ADAMS Accession No. ML091410446)
- 2) NRC Letter dated July 23, 2009, from Michael T. Markley to Rafael Flores providing Approval of Relief Request P-2 (TAC Nos. MD9722 and MD9723) (ADAMS Accession No. ML091620548)