UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 9, 2018

Mr. Ken J. Peters
Senior Vice President and
Chief Nuclear Officer
Attention: Regulatory Affairs
Vistra Operations Company LLC
Comanche Peak Nuclear Power Plant
6322 N FM 56
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 – RELIEF REQUEST 1/2B3-2 REGARDING SYSTEM LEAKAGE TEST FOR CLASS 1 PIPING (EPID L-2017-LLR-0125)

Dear Mr. Peters:

By letter dated October 30, 2017, as supplemented by letters dated November 1, and December 13, 2017, Vistra Operations Company LLC (the licensee) submitted Relief Request 1/2B3-2 to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI requirements at Comanche Peak Nuclear Power Plant, Unit Nos. 1 and 2 (CPNPP, Units 1 and 2).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use an alternative on the basis that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee proposed to use the alternative requirements in ASME Code Case N-798, "Alternative Pressure Testing Requirements for Class 1 Piping between the First and Second Vent, Drain, and Test Isolation Devices, Section XI," and ASME Code Case N-800, "Alternative Pressure Testing Requirements for Class 1 Piping between the First and Second Injection Valves, Section XI."

On November 1, 2017, the NRC verbally authorized the use of Relief Request 1/2B3-2 at CPNPP, Units 1 and 2, for the remainder of the third 10-year inservice inspection (ISI) interval, which the licensee stated is scheduled to end on August 12, 2020, for Unit 1 and on August 2, 2024, for Unit 2. By letter dated December 13, 2017, the licensee stated it had made a typographical error regarding the third 10-year ISI interval end date for Unit 2 and that the correct date is August 2, 2023. Based on the enclosed safety evaluation, the NRC staff review concludes that complying with the ASME Code requirement specified in IWB-5222(b) would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the proposed alternative leakage test provides reasonable assurance of structural integrity and leak tightness of the subject piping segments and associated welded connections. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff

authorizes the use of Relief Request 1/2B3-2 for the remainder of the third 10-year ISI interval at CPNPP, Unit 1 which commenced on August 13, 2010, and is scheduled to end on August 12, 2020, and Unit 2 which commenced on August 3, 2014, and is scheduled to end on August 2, 2023.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and authorized herein by the NRC staff remain applicable, including the third party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact the Project Manager, Margaret O'Banion at 301-415-1233 or via e-mail at Margaret.O'Banion@nrc.gov.

Sincerely,

Robert J. Pascarelli, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosure:
Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST 1/2B3-2 REGARDING SYSTEM LEAKAGE TEST FOR CLASS 1 PIPING

VISTRA OPERATIONS COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-445 AND 50-446

1.0 INTRODUCTION

By letter dated October 30, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17313A451), as supplemented by letters dated November 1, and December 13, 2017 (ADAMS Accession Nos. ML17313A454 and ML18009A441, respectively), Vistra Operations Company LLC (the licensee) requested an alternative from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI. In Relief Request 1/2B3-2, the licensee proposed to use the alternative requirements in ASME Code Case N-798, "Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices, Section XI," and ASME Code Case N-800, "Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Injection Valves, Section XI." This request is for the remainder of the third 10-year inservice inspection (ISI) interval of the Comanche Peak Nuclear Power Plant, Unit Nos. 1 and 2 (CPNPP, Units 1 and 2).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(z)(2), the licensee submitted Relief Request 1/2B3-2 in which it proposed an alternative system leakage test on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

On November 1, 2017 (ADAMS Accession No. ML17306A132), the U.S. Nuclear Regulatory Commission (NRC) verbally authorized the use of Relief Request 1/2B3-2 at CPNPP, Units 1 and 2, for the remainder of the third 10-year ISI interval, which the licensee stated is scheduled to end on August 12, 2020, for Unit 1 and on August 2, 2024, for Unit 2. By letter dated December 13, 2017, the licensee stated it had made a typographical error regarding the third 10-year ISI interval end date for Unit 2 and that the correct date is August 2, 2023. Therefore, the NRC authorizes the use of Relief Request 1/2B3-2 at CPNPP, Units 1 and 2, for the remainder of the third 10-year ISI interval, which is scheduled to end on August 12, 2020, for Unit 1 and on August 2, 2023, for Unit 2. The NRC review concluded that complying with the ASME Code requirement specified in IWB-5222(b) would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the proposed

alternative leakage test provides reasonable assurance of structural integrity and leak tightness of the subject piping segments and associated welded connections.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), "Inservice inspection standards requirement for operating plants," throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) that are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions and addenda of the ASME Code that become effective subsequent to editions specified in paragraphs (g)(2) and (3) of 10 CFR 50.55a and that are incorporated by reference in paragraph (a)(1)(ii) of 50.55a, to the extent practical within the limitations of design, geometry, and materials of construction of the components.

Pursuant to 10 CFR 50.55a(g)(4)(ii), "Applicable ISI Code: Successive 120-Month intervals," inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in paragraph (a) of 10 CFR 50.55a 12 months before the start of the 120-month inspection interval (or the optional ASME Code Cases listed in NRC Regulatory Guide (RG) 1.147, Revision 17, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1" (ADAMS Accession No. ML13339A689), when using ASME Code, Section XI, as incorporated by reference in paragraphs (a)(3)(ii) of 50.55a), subject to the conditions listed in paragraph (b) of 10 CFR 50.55a. However, a licensee whose ISI interval commences during the 12 through 18-month period after August 17, 2017, may delay the update of their Appendix VIII program by up to 18 months after August 17, 2017. Alternatively, licensees may, at any time in their 120-month ISI interval, elect to use the Appendix VIII in the latest edition and addenda of the ASME Code incorporated by reference in paragraph (a) of 10 CFR 50.55a, subject to any applicable conditions listed in paragraph (b) of 10 CFR 50.55a. Licensees using this option must also use the same edition and addenda of Appendix I as Appendix VIII, including any applicable conditions listed in paragraph (b) of 10 CFR 50.55a.

Pursuant to 10 CFR 50.55a(z), "Alternatives to codes and standards requirements," alternatives to the requirements of paragraphs (b) through (h) of 50.55a or portions thereof may be used when authorized by the Director, Office of Nuclear Reactor Regulation, or Director, Office of New Reactors, as appropriate. A proposed alternative must be submitted and authorized prior to implementation. The applicant or licensee must demonstrate that: (1) "Acceptable level of quality and safety," the proposed alternative would provide an acceptable level of quality and safety; or (2) "Hardship without a compensating increase in quality and safety," compliance with the specified requirements of 10 CFR 50.55a would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the NRC to authorize the alternative requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Component Affected

ASME Code Class 1 pressure retaining components classified as Examination Category B-P, Item No. B15.20, in Table IWB-2500-1 are affected. The licensee identified the affected lines as:

- Class 1 piping segments between the first and second isolation device (or blind flange) on small bore reactor coolant system (RCS) manual vent and drain lines that are listed in Relief Request 1/2B3-2[1], Table A-1, "Unit 1 Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices (N-798)," for Unit 1 and Table A-2, "Unit 2 Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices (N-798)," for Unit 2;

- Class 1 piping segments between the first and second isolation valves on safety injection (SI) and shutdown cooling lines that are listed in Relief Request 1/2B3-2, Table B-1, "Unit 1 Class 1 Piping Between the First and Second Isolation Valves (N-800)," for Unit 1 and Table B-2, "Unit 2 Class 1 Piping Between the First and Second Isolation Valves (N-800)," for Unit 2

    - High-pressure safety injection (HPSI)/Cold leg injection lines
    - Hot leg/Cold leg safety injection lines
    - Hot leg shutdown cooling suction lines

The licensee stated that the materials of construction of the above pipes and fittings are stainless steel. Relief Request 1/2B3-2, Table C, "Class 1 Piping Design Table, Nuclear Code Class 1," provides the material type, schedule, pressure rating, pipe size, and type of welded connection for the above pipes and fittings.

3.2 Applicable Code Edition and Addenda

The Code of record for the third 10-year ISI interval at CPNPP, Units 1 and 2, is the ASME Code, Section XI, 2007 Edition with the 2008 Addenda.

3.3 Duration of Relief Request

By letter dated October 30, 2017, the licensee stated that the alternative is applicable for the remainder of the third 10-year ISI interval at CPNPP, Unit 1, which is scheduled to end on August 12, 2020, and at CPNPP, Unit 2, which is scheduled to end on August 2, 2024. By letter dated December 13, 2017, the licensee stated it had made a typographical error regarding the third 10-year ISI interval end date for Unit 2 and that the correct date is August 2, 2023.

By letter dated November 1, 2017, the licensee identified that in the first and second 10-year ISI intervals, it had improperly performed the end of inspection interval system leakage test that was required by ASME Code, Section XI, Table IWB-2500-1 and IWB-5222(b) for the Class 1 pressure boundary piping segments located between the first and second isolation valves. By letters dated October 30 and November 1, 2017, the licensee requested the NRC verbal authorization for failing to comply with IWB-5220(b) system leakage test in the first and second

[1] Submitted by letter dated October 30, 2017.

10-year ISI intervals and relief from the requirements of IWB-5220(b) for the third 10-year ISI interval for both units by Relief Request 1/2B3-2 in order to start up the CPNPP, Unit 1, reactor, which has been in a refueling outage as well as to continue operation of the CPNPP, Unit 2 reactor.

3.4 ASME Code Requirement

The ASME Code requirements applicable to this request originate in IWB-2500 of ASME Code, Section XI. Table IWB-2500-1, Examination Category B-P, Item No. B15.20, requires the system leakage test to be conducted according to IWB-5220 and the associated VT-2 visual examinations to be performed according to IWA-5240 at or near the end of every inspection interval.

In accordance with IWB-5221(a), the system leakage test shall be conducted at a pressure not less than the pressure corresponding to 100 percent rated reactor power.

In accordance with IWB-5222(a), the pressure retaining boundary during the system leakage test shall correspond to the reactor coolant boundary, with all valves in the position required for normal reactor operation startup. The required VT-2 visual examination shall, however, extend to and include the second closed valve at the boundary extremity.

In accordance with IWB-5222(b), the Class 1 pressure retaining boundary, which is not pressurized when the system valves are in the position required for normal reactor startup shall be pressurized and examined at or near the end of the inspection interval. This boundary may be tested in its entirety or in portions and testing may be performed during the testing of the boundary of IWB-5222(a).

3.5 Proposed Alternative

To conduct the system leakage test of the piping segments listed in Tables A-1 and A-2 of Relief Request 1/2B3-2 at the end of inspection interval, the licensee proposed to implement the alternative provisions in ASME Code Case N-798. This ASME Code Case has not been incorporated by reference into 10 CFR 50.55a by inclusion in RG 1.147, Revision 17.

The licensee's proposed system leakage test for the piping segments between the first and second isolation device on Class 1 vents and drain lines is as follows:

- The Class 1 vents and drain lines will not be pressurized past the first isolation valve for this inspection.

To conduct the end of inspection interval's system leakage test of the piping segments listed in Tables B-1 and B-2 of Relief Request 1/2B3-2, the licensee proposed to implement the alternative provisions in ASME Code Case N-800. This ASME Code Case has not been incorporated by reference into 10 CFR 50.55a by inclusion in RG 1.147, Revision 17.

The licensee's proposed system leakage test for the piping segments between the first and second isolation valves on Class 1 SI and shutdown cooling lines is as follows:

- The pressurizer auxiliary spray lines' leakage test will be performed using the outboard Class 2 system functional pressure associated with auxiliary spray.

- The HPSI lines' leakage test will be performed during the associated isolation valve leakage surveillances.

- The hot leg injection lines' leakage test will be performed during the associated isolation valve leakage surveillances.

- The cold leg safety injection lines' leakage test will be performed using the outboard Class 2 system functional pressure associated with the safety injection accumulators.

- The hot leg shutdown cooling suction lines' leakage test will be performed using the outboard Class 2 system functional pressure associated with the normal shutdown cooling system pressure.

Table 1, "Unit 1 Class 1 Pressure Testing," Table 2, "Unit 2 Class 1 Pressure Testing," and Table 3, "Unit 1 Class 1 Piping Segments Maximum Pressure," of the letter dated November 1, 2017, provide the test conditions, including the test pressures used to perform the proposed system leakage test of the subject piping segments.

The licensee stated that as part of the proposed system leakage test, it will perform the required VT-2 visual examinations in accordance with IWA-5240.

3.6 Basis for Alternative

The licensee stated that Relief Request 1/2B3-2 was submitted because the licensee had recently identified that the end of inspection interval's system leakage test required per IWB-5222(b) was performed improperly during the first and second 10-year ISI intervals without the NRC authorization. The licensee noted that no through wall leakage has been identified in any of the subject piping segments and welded connections during the first and second ISI intervals.

Small bore Class 1 RCS manual vent and drain lines:

The licensee stated that the subject vents and drain lines range in nominal pipe size (NPS) from ¾ inch to 2 inches, and are equipped with inboard and outboard isolation valves that provide double isolation of the reactor coolant pressure boundary (RCPB). The valves are maintained in the closed position during normal plant operation and the downstream pipe and blind flange are not normally pressurized. Opening the inboard isolation valves to pressurize the downstream piping and connections defeats the double isolation criteria. The proposed system leakage test will not specifically pressurize the pipe segments past the first isolation valve (i.e. pipes between the isolation valves will not be pressurized) for this test. As part of the proposed leakage test, the associated VT-2 visual examination will be performed in accordance with IWA-5240.

In its letter dated October 30, 2017, the licensee stated that as part of the Class 1 system leakage test conducted at the conclusion of every refueling outage, the subject vent and drain piping segments between the first and second isolation valves have also been included in the VT-2 visual examinations.

Class 1 safety injection and shutdown cooling piping segments (as stated, in part, by the licensee):

HPSI/Cold Leg Injection

These piping segments, identified in Table B-1, B-2, provide the flow path for High Pressure Safety Injection (HPSI) into the RCS. The primary isolation devices are the four 1.5-inch check valves at the cold leg oriented to flow into the RCS. The upstream isolation is at a single 3-inch check valve. The piping segments provide the required double isolation barrier for the RCPB. These lines are visually examined during the Reactor Coolant System Pressure Isolation Valve leak rate testing, in accordance with the requirement to examine systems at their highest operating pressure.

Hot Leg/Cold Leg Safety Injection

These large bore piping segments, identified in Tables B-1, B-2, provide the flow path for Safety Injection into the RCS. The primary isolation devices are the 10-inch check valves oriented to flow into the RCS with the 10-inch, 6-inch, and 2-inch second isolation valves on branch lines. The piping segments provide the design required double isolation barrier for the RCPB. These lines are visually examined during the RCS system leakage test within the Class 1 boundary lines.

Leakage testing at RCS pressure would require unusual temporary system configurations, which would challenge the Class 2 piping and components should the Class 1 to Class 2 boundary valve leak by toward the Class 2 system(s). For the proposed [system leakage] testing, the components will be subjected to the outboard Class 2 system functional pressure associated with the SI Accumulators (Cold Leg) and Reactor Coolant System Pressure Isolation Valve leak rate testing (Hot Leg) in accordance with the requirement to examine systems at their highest operating pressure.

Hot Leg Shutdown Cooling Suction

There are two 12-inch Hot Leg Shutdown Cooling Suction lines, one each from RCS Loop 1 and 4 Hot Legs, identified in Tables B-1, B-2. These piping segments consist of piping between the two Shutdown Cooling Suction valves on each train of the system (valves 1/2-8701A and 1/2-8702A on Train A and valves 1/2-8701B and 1/2-8702B on Train B). These valves are open-interlocked at a required set point below 364 psig [pounds per square inch gauge] to avoid over-pressurization of the Shutdown Cooling System. The interlock prevents manual opening of the valves from the Control Room when the RCS pressure is above the set point.

The examination [or proposed leakage test] of these components will be performed using the outboard Class 2 system functional pressure associated with the normal Shutdown Cooling system pressure and valve in accordance with the requirement to examine systems at their highest operating pressure. [As part of testing, the associated VT visual examinations will be performed according to IWA-5240.]

Furthermore, the licensee stated that there have been no instances of stress corrosion cracking (SCC) and thermal fatigue reported in the welded connections of the subject piping segments at CPNPP.

The licensee stated that seven welds in the safety injection system piping and three welds in the residual heat removal (RHR) system piping at CPNPP, Unit 1, and nine welds in the safety injection system piping and two welds in the RHR system piping at CPNPP, Unit 2, have been selected under the CPNPP risk-informed (RI)-ISI program for volumetric examinations. There have not been any unacceptable indications identified in any of the welded connections inspected.

3.7 Basis for Hardship

The licensee stated that the subject Class 1 piping segments are equipped with the first and second isolation valves, which provide double isolation of the RCPB. During normal plant operation, the first and second isolation valves are generally maintained in the closed position. The piping outboard of the first isolation valve is not normally pressurized to the RCS pressure during normal operation.

To perform the ASME Code required leakage test, it would be necessary to open or bypass the inboard isolation valve to pressurize these piping segments to the RCS pressure. Pressurization by this method defeats the double isolation criteria and reduces the margin of personnel safety for those performing the test. Performing the test with the inboard isolation valves open requires several man-hours to position the valves for the test and restore the valves to their closed positions once the test is completed. These valves are located in close proximity to the RCS loop piping, and thus would require personnel entry into high radiation areas within the containment and a consequent increase in radiation exposure. As stated in its letter dated November 1, 2017, the licensee estimated (with consideration of 'as low as reasonably achievable' (ALARA)) that extending the boundary to the second isolation valve for all Class 1 components would result in accrual of additional radiation dose of 1.926 roentgen equivalent man (rem), and would require an estimated 147 man hours for Unit 1. The estimate for accrual of additional radiation dose at Unit 2 is 1.767 rem, and would require an estimated 136 man hours. The licensee stated that these estimates are based on durations and local dose rates for the activities such as scaffold erection, insulation removal, valve manipulations, blind flange work, freeze seals, exams, reinstallation of insulation, and scaffold removal. Thus, compliance with the IWB-5222(b) requirement results in hardship.

3.8 NRC Staff Evaluation

The NRC staff has evaluated Relief Request 1/2B3-2 pursuant to 10 CFR 50.55a(z)(2). The NRC staff focused on whether compliance with the specified requirements of 10 CFR 50.55a(g), or portions thereof, would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety.

Hardship

The NRC staff determined that requiring the licensee to comply with IWB-5222(b) and extend the pressure boundary to all Class 1 components within the system boundary when conducting system leakage test at or near the end of ISI interval would result in hardship. The basis for the hardship is as follows.

- During normal operation, the piping segments listed in this relief request are isolated from the reactor coolant by the isolation valves. The valves were designed to serve as double isolation barrier to the RCPB. The licensee could open the inboard isolation valve manually, or bypass the inboard isolation valve by use of "jumper" around the valve, or use high pressure connections and external pump to pressurize these piping segments to the RCS operating pressure to perform the required system leakage test. However, the above actions defeat the double isolation criteria, conflict with the plant design requirements, and reduce safety of the plant operation. Furthermore, it poses unnecessary safety hazards to personnel operating equipment and performing the test in case of a break in any temporary connections, and it exposes personnel to unnecessary high radiation dose since these segments of the pipes are located in high radiation areas within containment.

- The licensee would have to redesign the RCS system piping because compliant methods with the plant design do not exist to accommodate performance of the ASME Code leakage test of the subject piping segments.

Therefore, the NRC staff determined that concerns from defeating the double isolation requirements, modifying components' existing configuration that would create conditions that would conflict with the plant design requirements, and exposing personnel to unnecessary additional high radiation and safety hazards constitute a hardship.

Test Pressure

In evaluating the licensee's proposed alternative, the NRC staff assessed whether the licensee used the highest achievable test pressure to conduct system leakage testing and the manner in which the licensee adequately preformed the testing and the associated VT-2 visual examinations of the piping for leakage. The NRC staff determined that the licensee will specifically conduct the leakage test as follows:

- The small bore Class 1 vents and drain lines will not be pressurized past the first isolation valve.

- The testing of pressurizer auxiliary spray lines will be performed using the outboard Class 2 system functional pressure associated with the auxiliary spray.

- The HPSI lines will be tested during the associated isolation valve leakage surveillances.

- The hot leg injection lines will be tested during the associated isolation valve leakage surveillances.

- The cold leg safety injection lines will be tested using the outboard Class 2 system functional pressure associated with the safety injection accumulators.

- The hot leg shutdown cooling suction lines will be tested using the outboard Class 2 system functional pressure associated with the normal shutdown cooling system pressure.

As part of the above test, the licensee will perform the required VT-2 visual examinations on the subject piping segments in accordance with the IWA-5240 to identify any leak or boron residue.

The licensee will accomplish this leakage test without any modifications to existing configuration of the pipes and associated isolation valves. This approach will not: conflict with the plant design requirements; create unnecessary safety hazards; or cause unnecessary radiation exposure to the personnel involved. Therefore, the NRC staff determines that the licensee's proposed system leakage test is adequate because the VT-2 visual examinations will identify any evidence of leak or boron residue.

Structural Integrity and Leak Tightness

In addition to the analysis described above, the NRC staff considered whether the licensee's proposed alternative provided reasonable assurance of structural integrity and leak tightness of the subject piping segments and associated welded connections based on: (1) the presence or absence of known active degradation mechanisms; and (2) the significance of a leak and/or structural failure of the pipe segments and their welded connections.

Presence or absence of known active degradation mechanisms

The NRC staff notes that the subject piping segments and welded connections are made of stainless steel. Fatigue (low cycle fatigue and high cycle fatigue) and/or SCC can be a potential degradation mechanism for these piping segments. It is known that low cycle fatigue cracks have relatively slow growth, and field experience has shown that SCC under the conditions associated with the subject piping is not expected. Furthermore, the subject piping segments are governed by the CPNPP RI-ISI program, and the high cycle fatigue (thermal fatigue) cracking of unisolable piping connected to the RCS is managed by an augmented program. Therefore, it is expected that any significant degradation of the piping under consideration would be detected by the alternative leakage test accompanied by the VT-2 visual examinations performed.

Significance of a leak and/or structural failure of the pipe segments and welded connections

The NRC staff notes that in the unlikely event that the subject piping segments developed a through wall flaw and a leak during normal operation, the CPNPP existing reactor coolant leakage detection systems will be able to identify the leakage, and the licensee will take appropriate corrective actions in accordance with the plant technical specifications. In addition, the regular walkdowns, boric acid corrosion control program, and/or the VT-2 visual examinations performed following ASME Code required system leakage testing every refueling outage provide additional assurance that any through wall leak in the lines would be detected. Therefore, the NRC staff determines that based on the alternative leakage test accompanied by the ASME Code required VT-2 visual examinations, it is reasonable to conclude that if significant service induced degradation occurs, evidence of that degradation will be detected either by the proposed examinations or the RCS leakage detection systems or other inspections.

Therefore, the NRC staff concludes that the proposed system leakage test accompanied by the VT-2 examination is adequate to provide a reasonable assurance of structural integrity and leak tightness of the subject piping segments and welded connections. Complying with the requirement specified in IWB-5222(b) would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject piping segments, and complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2) for the period of time following November 1, 2017. Therefore, the NRC staff authorizes the use of Relief Request 1/2B3-2 for the remainder of the third 10-year ISI interval at CPNPP, Unit 1 which commenced on August 13, 2010, and is scheduled to end on August 12, 2020, and Unit 2 which commenced on August 3, 2014, and is scheduled to end on August 2, 2023.

Alternatively, the NRC staff concludes that the licensee has not addressed all the regulatory requirements of 10 CFR 50.55a(z)(2) for the period of time preceding November 1, 2017 because the request was not submitted prior to implementation. Therefore, the NRC staff does not authorize the use of Relief Request 1/2B3-2 for the first and second 10-year ISI intervals for CPNPP, Units 1 and 2. The second 10-year ISI interval for CPNNP, Unit 1 ended on August 12, 2010 and the CPNPP, Unit 2 second 10-year ISI interval ended on August 2, 2014.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and authorized herein by the NRC staff remain applicable, including the third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: Ali Rezai, NRR

Date: January 9, 2018

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 – RELIEF REQUEST 1/2B3-2 REGARDING SYSTEM LEAKAGE TEST FOR CLASS 1 PIPING (EPID L-2017-LLR-0125) DATED JANUARY 9, 2018

DISTRIBUTION:
PUBLIC
PM File Copy
RidsACRS_MailCTR Resource
RidsNrrDorlLpl4 Resource
RidsNrrDmlrMphb Resource
RidsNrrLAPBlechman Resource
RidsNrrPMComanchePeak Resource
RidsRgn4MailCenter Resource
ARezai, NRR
LRegner, NRR
BSingal, NRR
JBowen, OEDO

ADAMS Accession No. ML17353A684

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DMLR/MPHB/BC	NRR/DORL/LPL4/BC
NAME	M'OBanion	PBlechman	DAlley	RPascarelli
DATE	01/09/18	01/09/18	01/02/18	01/09/18

OFFICIAL RECORD COPY