



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

September 18, 2015

Mr. Rafael Flores
Senior Vice President and
Chief Nuclear Officer
Attention: Regulatory Affairs
Luminant Generation Company LLC
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNIT 2 – RELIEF REQUEST
2A3-1 FOR APPLICATION OF RISK-INFORMED ALTERNATIVE TO THE
ASME BOILER AND PRESSURE VESSEL CODE INSERVICE INSPECTION
REQUIREMENTS FOR CLASS 1 AND 2 PIPING WELDS FOR THE THIRD
10-YEAR INSERVICE INSPECTION INTERVAL (TAC NO. MF5813)

Dear Mr. Flores:

By letter dated March 4, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15003A085), as supplemented by letter dated July 22, 2015 (ADAMS Accession No. ML15211A240), Luminant Generation Company LLC (the licensee) submitted Relief Request 2A3-1 to the U.S. Nuclear Regulatory Commission (NRC) for Comanche Peak Nuclear Power Plant (CPNPP), Unit 2, for the third 10-year inservice inspection (ISI) interval. The licensee requested authorization for continued use of the risk-informed ISI (RI-ISI) program as an alternative for the selection of Class 1 and 2 piping welds for examination as required by American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), paragraph 50.55a(z)(1), the licensee requested to extend the RI-ISI program on the basis that the proposed alternative provides an acceptable level of quality and safety.

The NRC staff has reviewed the request and determined, as set forth in the enclosed safety evaluation, that the proposed alternative provides an acceptable 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)(1). Therefore, the NRC staff authorizes the use of this proposed alternative at CPNPP, Unit 2, for the third 10-year ISI interval, which commenced on August 3, 2014, and is scheduled to end on August 2, 2023.

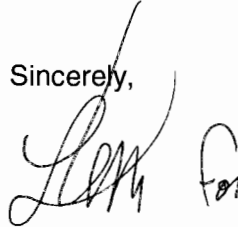
All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

R. Flores

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If you have any questions, please contact Balwant K. Singal at 301-415-3016 or via e-mail at Balwant.Singal@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Markley', followed by a small 'for' and a signature.

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-446

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST 2A3-1

THIRD 10-YEAR INSERVICE INSPECTION INTERVAL

LUMINANT GENERATION COMPANY LLC

COMANCHE PEAK NUCLEAR POWER PLANT, UNIT 2

DOCKET NO. 50-446

1.0 INTRODUCTION

By letter dated March 4, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15003A085), as supplemented by letter dated July 22, 2015 (ADAMS Accession No. ML15211A240), Luminant Generation Company LLC (the licensee) submitted Relief Request 2A3-1 to the U.S. Nuclear Regulatory Commission (NRC) for Comanche Peak Nuclear Power Plant (CPNPP), Unit 2, for the third 10-year inservice inspection (ISI) interval. The licensee requested authorization for continued use of risk-informed ISI (RI-ISI) program as an alternative for the selection of Class 1 and 2 piping welds for examination as required by American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), paragraph 50.55a(z)(1), the licensee requested to extend the RI-ISI program on the basis that the proposed alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), the ASME Code Class 1, 2, and 3 components (including supports) must meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components.

Pursuant to 10 CFR 50.55a(z), alternatives to the requirements of paragraph (g) of 10 CFR 50.55a may be used when authorized by the Director, Office of Nuclear Reactor Regulation. A proposed alternative must be submitted and authorized prior to implementation. The licensee must demonstrate (1) the proposed alternative would provide an acceptable level of quality and safety; or (2) compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Enclosure

Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" May 2011 (ADAMS Accession No. ML100910006), provides guidance on the use of probabilistic risk assessment (PRA) findings and risk insights to support licensee requests for changes to a plant's licensing basis (LB). RG 1.174 also defines an acceptable approach to analyzing and evaluating proposed LB changes. The approach includes traditional engineering evaluations supported by insights derived from the use of PRA methods about the risk significance of the proposed changes. In implementing risk informed decision making, the NRC expects LB changes to meet the acceptance guidelines and key principles of risk informed regulation specified in RG 1.174. Directly relevant to RG 1.174 are:

- RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (ADAMS Accession No. ML090410014)
- RG 1.178, Revision 1, "An approach for Plant-Specific Risk-Informed Decision Making for Inservice Inspection of Piping," September 2003 (ADAMS Accession No. ML032510128)
- Chapter 3.9.8, Revision 0, "Risk-Informed Inservice Inspection of Piping," September 2003 (ADAMS Accession No. ML032510135) of NUREG 0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants,"

RG 1.200 describes an approach to determine whether the technical adequacy of the PRA used to support a submittal is consistent with accepted practices. RG 1.178 describes methods acceptable to the NRC for integrating insights from PRA techniques with traditional engineering analyses into ISI programs for piping. Incorporating risk insights into the programs can focus inspections on the more important locations and reduce personnel exposure, while at the same time maintaining or improving public health and safety. Chapter 3.9.8 of the Standard Review plan (SRP) provides guidance for evaluating the licensee's requests for changes to the LB due to use of risk insights.

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 Components Affected

The ASME Code Class 1 and 2 piping welds.

In accordance with ASME Code, Section XI, IWB-2500 (Table IWB-2500-1), the Class 1 vessel nozzle to pipe dissimilar metal (DM) welds are classified as Examination Category B-F, and the Class 1 piping similar and DM welds are classified as Examination Category B-J. In accordance with IWC-2500 (Table IWC-2500-1), the Class 2 austenitic stainless steel or high alloy piping

welds are classified as Examination Category C-F-1, and the Class 2 carbon or low alloy steel piping welds are classified as Examination Category C-F-2.

3.2 Applicable Code Edition and Addenda

The Code of record for the third 10-year ISI interval is the 2007 Edition through 2008 Addenda of the ASME Code, Section XI.

3.3 Duration of Relief Request

The licensee submitted this relief request for the third 10-year ISI interval, which commenced on August 3, 2014, and is scheduled to end on August 2, 2023.

3.4 ASME Code Requirement

Table IWB-2500-1, Examination Category B-F and B-J, requires the Class 1 welds be subjected to the volumetric or surface examination, or both, during successive 120-month (10-year) intervals. According to the above requirements, 100 percent of all nozzle to pipe DM welds in Examination Category B-F, and 25 percent of all piping welds with more than 1-inch nominal diameter in Examination Category B-J shall be inspected.

Table IWC-2500-1, Examination Category C-F-1 and C-F-2, require the Class 2 piping welds be subjected to the volumetric or surface examination, or both, during successive 120-month (10-year) intervals. According to above requirements, 7.5 percent of non-exempt piping welds in Examination Category C-F-1 and C-F-2 (but not less than 28 welds) shall be inspected.

3.5 Background

During the first and second 10-year ISI intervals of CPNPP, Unit 2, the licensee has implemented the RI-ISI program for the Class 1 piping welds (Examination Category B-F and B-J) and the Class 2 piping welds (Examination Category C-F-1 and C-F-2). The licensee developed the CPNPP, Unit 2, original RI-ISI program in accordance with the NRC-approved methodology of the Electric Power Research Institute (EPRI) Topical Report (TR)-112657, Revision B-A, "Revised Risk-Informed Inservice Inspection Evaluation Procedure (PWRMRP-05)," December 1999 (ADAMS Accession No. ML013470102), in 2001. The NRC approved the CPNPP, Unit 2, RI-ISI program for the first 10-year ISI interval by letter dated September 28, 2001 (ADAMS Accession No. ML012710112), and for the second 10-year ISI interval by letter dated October 5, 2006 (ADAMS Accession No. ML062750371). During the first and second 10-year ISI intervals, the licensee periodically reviewed and updated the CPNPP, Unit 2, RI-ISI program, at a minimum, on an ASME Code inspection period basis.

3.6 Proposed Alternative

The licensee proposed to continue the use of CPNPP, Unit 2, RI-ISI program for the Class 1 and 2 piping welds in the third 10-year ISI interval.

3.7 Basis for Use

The licensee stated that during implementation of the RI-ISI program in the first and second 10-year ISI intervals, it was committed to review and adjust the risk ranking of piping segments as a minimum on an ASME Code inspection period basis. The licensee also followed the industry guidance provided in Nuclear Energy Institute (NEI) 04-05, "Living Program Guidance to Maintain Risk-Informed Inservice Inspection Programs for Nuclear Plant Piping Systems," April 2004 (ADAMS Accession No. ML041480432). The updated CPNPP, Unit 2, RI-ISI program is the proposed alternative ISI program for the subject piping welds in the third 10-year ISI interval. In the Attachment to the letter dated March 4, 2015, the licensee provided a table in relief request 2A3-1 that shows the changes (e.g., number of welds added and deleted) from the previously approved RI-ISI program. The changes from the previous program are attributable to the specific information identified in each review.

In a letter dated July 22, 2015, the licensee provided the following additional information:

- During the second 10-year ISI interval, the licensee did not identify any unacceptable indications when the subject welds were inspected under the RI-ISI program. There were no new service-induced degradations identified.
- The RI-ISI process has criteria that specifically evaluates the susceptibility of piping to thermal fatigue. Augmented examination programs such as those presented in NRC Bulletin (BL) 88-11, "Pressurizer Surge Line Thermal Stratification," dated December 20, 1988 (ADAMS Accession No. ML031220290), NRC Information Notice (IN) 93-20, "Thermal Fatigue Cracking of Feedwater Piping to Steam Generators," dated March 24, 1993 (ADAMS Accession No. ML031080045), EPRI's Materials Reliability Program (MRP)-146, "Materials Reliability Program: Management of Thermal Fatigue in Normally Stagnant Non-Isolable Reactor Coolant System Branch Lines," June 2005 (not publicly available), and BL 79-13, Revision 2, "Cracking in Feedwater System Piping," dated October 16, 1979 (ADAMS Accession No. ML031220025), are subsumed by the proposed CPNPP, Unit 2, RI-ISI program.
- The augmented inspection program for the flow accelerated corrosion (FAC) in accordance with NRC Generic Letter (GL) 89-08, "Erosion/Corrosion-Induced Pipe Wall Thinning," dated May 2, 1989 (ADAMS Accession No. ML031470660), remains a separate program and is not affected or changed by the proposed RI-ISI program. This is the same criteria that has been implemented since the CPNPP, Unit 2, original RI-ISI application was approved by the NRC in 2001.
- The augmented inspection program for high energy break exclusion piping is a separate program and is not affected or changed by the proposed RI-ISI program.
- The licensee will meet the requirements in 10 CFR 50.55a(g)(6)(ii)(E), which requires implementation of ASME Code Case N-722-1, "Additional Examinations for PWR [Pressurized-Water Reactor] Pressure Retaining Welds in Class 2

Components Fabricated With Alloy 600/82/182 Materials Section XI, Division 1," with conditions.

- The licensee will meet the requirements in 10 CFR 50.55a(g)(6)(ii)(F) that requires implementation of ASME Code Case N-770-1, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated With UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities Section XI, Division 1," with conditions. The risk ranking, element selection, and risk impact analysis have been changed to reflect the inspection of the primary water stress-corrosion cracking (PWSCC) welds according to N-770-1 with the applicable welds removed from the RI-ISI program.
- Portions of the containment spray and residual heat removal systems contain Class 2 piping that is less than 0.375 inches thick. The ASME Code, Section XI, does not require surface or volumetric examinations on this piping based on the wall thickness. However, in response to NUREG-0797, Supplement Number 26, "Safety Evaluation Report Related to the Operation of Comanche Peak Steam Electric Station, Unit 2," February 1993 (not publicly available), the licensee committed to perform volumetric examinations on 7.5 percent of the welds in this "thin wall" piping during each 10-year ISI interval. The licensee included this piping in the scope of the RI-ISI application; therefore, its augmented inspection is addressed by the RI-ISI program. Consequently, the RI-ISI program subsumes this augmented inspection program. This is the same criteria that has been implemented since the CPNPP, Unit 2, original RI-ISI application was approved by the NRC in 2001.
- The RI-ISI program is a living program requiring feedback of new relevant information to ensure the appropriate identification of high safety-significant piping locations. As a minimum, the proposed RI-ISI program for the third 10-year ISI interval will be reviewed and adjusted on an ASME Code inspection period basis. In addition, significant changes may require more frequent adjustment as directed by the NRC, industry, or plant specific feedback.
- The licensee provided a table containing the updated risk impact analysis (changes in core damage frequency (CDF) and large early release frequency (LERF)) for CPNPP, Unit 2.

3.8 NRC Staff Evaluation

The NRC staff has evaluated this relief request pursuant to 10 CFR 50.55a(z)(1). The NRC staff focused on whether the proposed alternative provides an acceptable level of quality and safety.

In support of this relief request, the licensee used the methodology of the NRC-approved EPRI TR-112657, Revision B-A, to develop the CPNPP, Unit 2, original RI-ISI program (approved by the NRC in a letter dated September 28, 2001). The EPRI TR provides technical guidance on an alternative for selecting and categorizing the risk significance of piping components for the

purpose of developing an RI-ISI program. The guidance in RGs 1.174 and 1.178 defines an acceptable approach to analyzing and evaluating the licensee's proposed LB changes that are supported with risk information. As part of evaluating the proposed change to the CPNPP, Unit 2, ISI program, the licensee performed an engineering analysis (i.e., traditional engineering evaluation methods supported by insights derived from the use of PRA methods about the risk significance of the proposed changes) to demonstrate that the proposed changes are in conformance with the key principles of risk-informed regulation in RG 1.174 and will not compromise defense-in-depth and safety margins. As part of the RI-ISI process, the licensee performed periodic performance evaluations of the CPNPP, Unit 2, RI-ISI program and updated it in accordance with RGs 1.174 and 1.178.

The key principles of risk informed regulation in RG 1.174 are as follows:

Principle 1. The proposed change meets the current regulations unless it is explicitly related to a requested exemption (i.e., a specific exemption under 10 CFR 50.12, "Specific Exemptions").

Principle 2. The proposed change is consistent with a defense-in-depth philosophy.

Principle 3. The proposed change maintains sufficient safety margins.

Principle 4. When proposed changes result in an increase in CDF or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.¹

Principle 5. The impact of the proposed change should be monitored using performance measurement strategies.

In evaluating this relief request, the NRC staff focused on whether the licensee's proposed RI-ISI program conforms with these five key principles of risk informed regulation. The results of the NRC staff evaluation are described below.

The NRC staff determined that the licensee met Principle 1 of NRC RG 1.174 because the proposed RI-ISI program is an alternative to the ASME Code ISI program as may be requested for NRC approval pursuant to 10 CFR 50.55a(z)(1). This affirms that an exemption request is not required because the licensee's proposed LB change (i.e., using an alternative RI-ISI program) meets the current regulation.

In accordance with NRC RG 1.174, the engineering analysis should evaluate whether the impact of the proposed RI-ISI program (i.e., the proposed change to the ISI program) is consistent with the defense-in-depth philosophy, and sufficient safety margins are maintained. The NRC staff confirmed that as part of the RI-ISI process, the licensee performed a plant-specific engineering analysis according to the guidance in the NRC-approved EPRI TR-112657, Revision B-A, to develop the original RI-ISI program for CPNPP, Unit 2 (approved by the NRC in a letter dated September 28, 2001). The NRC staff also confirmed that the licensee has periodically reviewed the CPNPP, Unit 2, RI-ISI program, at a minimum, on an

¹ 51 FR 30028, "Safety Goals for the Operations of Nuclear Power Plants; Policy Statement," *Federal Register*, Volume 51, p. 30028, Washington, DC, August 21, 1986.

ASME Code inspection period basis as specific new information was identified or became available and, therefore, the risk ranking of piping segments has been adjusted to determine the risk-significant locations and the number of locations to inspect. Furthermore, the NRC staff notes that there are no changes made by the RI-ISI process to the evaluation of design-basis accidents in the final safety analysis report (FSAR), as discussed in EPRI TR-112657, Revision B-A. Therefore, the NRC staff determined that the licensee met Principles 2 and 3 of NRC RG 1.174, and that the proposed RI-ISI program is consistent with a defense-in-depth philosophy and maintains sufficient safety margins.

Principle 4 of RG 1.174 requires an evaluation of the change in risk between the proposed RI-ISI program and the program the licensee would otherwise be required to implement. The change-in-risk estimate is dependent on the location of inspections in the proposed RI-ISI program compared to the location of inspections that would be performed using the requirements of the ASME Code, Section XI. The NRC staff has previously determined that it is not necessary to develop a new deterministic ASME program for each new 10-year ISI interval. Instead, it is acceptable to compare the new proposed RI-ISI program with the last deterministic ASME program. The licensee states that, as part of the RI-ISI living program update, the delta risk assessment was re-evaluated and the revised program represents a reduction in overall risk of $1.74\text{E-}09/\text{year}$ with regard to CDF and $1.39\text{E-}09/\text{year}$ with regard to LERF. In its letter dated July 22, 2015, the licensee provided the results of the revised program delta risk assessment on a system by system basis. The change-in-risk results satisfy the acceptance guidelines of RG 1.174 and EPRI TR-112657, Revision B-A, when compared to the last deterministic Section XI inspection program for both the full plant and per system. Therefore, the NRC staff concludes that implementation of the RI-ISI program will have an acceptable impact on risk consistent with the acceptance guidelines in NRC RG 1.174.

Principle 4 also requires demonstration of the technical adequacy of the PRA. As discussed in RGs 1.178 and 1.200, an acceptable change-in-risk evaluation (and risk-ranking evaluation used to identify the most risk significant locations) requires the use of a PRA of appropriate technical quality that models the as-built and as-operated plant. EPRI TR-1021467-A, "Nondestructive Evaluation: Probabilistic Risk Assessment Technical Adequacy Guidance for Risk-Informed In-Service Inspection Programs," June 2012 (ADAMS Accession No. ML12171A450), provides guidance on the minimum acceptable quality requirement for a PRA used to support a risk-informed ISI program. The licensee stated that in March 2011, the Pressurized Water Reactor Owner's Group (PWROG) performed a full-scope peer review of CPNPP internal events and internal flooding PRA against the ASME PRA Standard (ASME/ANS RA-Sa-2009) and RG 1.200. The licensee stated that Revision 4A of the PRA model implemented resolution of the peer review findings. The NRC staff notes that this revision of the CPNPP PRA has been previously reviewed by the NRC and found acceptable for the risk-informed application to adopt the NRC-approved Technical Specifications Task Force (TSTF) traveler TSTF-425-A, Revision 3, "Relocate Surveillance Frequencies to Licensee Control-RITSTF [Risk-Informed TSTF] Initiative 5b," dated June 29, 2012 (ADAMS Accession No. ML12067A244). The licensee stated that the current model of record, Revision 4B, incorporated only minor plant changes. The licensee stated that after resolution of the peer review findings, the CPNPP PRA meets the quality requirements listed in EPRI TR-1021467-A. As part of its review of the TSTF-425-A application, the NRC staff determined that three supporting requirements (LE-C11, IFEV-A6, and IFSN-A6) are met at Capability Category I. The NRC staff further concluded that all other supporting requirements identified by the peer

review team as not met or only meeting Capability Category I have been acceptably resolved by the licensee. According to EPRI TR-1021467-A, supporting requirement LE-C11 only requires Capability Category I. The licensee stated that the supporting requirements related to internal flooding (IFEV-A6 and IFSN-A6) are not applicable to the RI-ISI application. The NRC staff determined the licensee's assessment to be acceptable because the CPNPP, Unit 2, RI-ISI program uses the EPRI traditional RI-ISI approach. This approach does not use internal flooding PRA directly for the consequence and change-in-risk evaluations to support the relief request. Therefore, the NRC staff concludes that the licensee has assessed the technical adequacy of its PRA using RG 1.200 and the PRA is consistent with the quality requirements specified in EPRI TR-1021467-A. Based on the above, the NRC staff determined that Principle 4 of NRC RG 1.174 is met.

In accordance with RG 1.178 and RG 1.174, implementation and performance monitoring strategies should be planned to ensure that the engineering evaluation conducted to examine the impact of the proposed changes continues to reflect the actual reliability and availability of systems that have been evaluated. When the examination of a weld under the proposed RI-ISI program is not practical or is limited because of physical constraints or radiation hazards, alternative inspection intervals, scope, and methods should be developed to ensure that piping degradation is detected and structural integrity is maintained. Based on the NRC staff's review of the request, the NRC staff determined that the licensee has considered the CPNPP, Unit 2, RI-ISI program as a living program and, in its letter dated July 22, 2015, the licensee stated that it will require feedback of new relevant information and adjust the proposed RI-ISI program, as a minimum, on an ASME Code inspection period basis to ensure the appropriate identification of high safety-significant piping locations. The licensee will require more frequent adjustments and updates if significant changes are directed by the NRC, industry, or plant-specific feedback. Therefore, the NRC staff determined that the licensee demonstrated that its proposed RI-ISI program is a living program that will be periodically reviewed and updated, and that Principle 5 of RG 1.174 is met.

Augmented Inspection Program

The NRC staff verified that the licensee implemented augmented inspection programs to address generic piping degradation problems, as required either by the NRC to preclude piping failure, or by the industry's good practice guidelines. The augmented inspection programs that will not be changed by the proposed RI-ISI program and will continue to be implemented, and those that will be subsumed by the RI-ISI program, are as follows.

- Augmented inspection program for managing thermal stratification and thermal fatigue (BL 88-11, IN 93-20, MRP-146, and BL 79-13):

These augmented inspection programs are subsumed by the proposed RI-ISI program because the proposed RI-ISI program addresses all the criteria or requirements specified in BL 88-11, IN 93-20, MRP-146, and BL 79-13.

- Augmented inspection program for flow accelerated corrosion (FAC) GL 89-08:

This program is a separate program and will remain in effect.

- Augmented inspection program for high energy break exclusion piping:

This program is a separate program and will remain in effect.

- Augmented inspection program for the PWSCC-susceptible Alloy 600/82/182 DM butt welds pursuant to 10 CFR 50.55a(g)(6)(ii)(E):

This program addresses bare metal visual examination (VE) of Alloy 600/82/182 DM butt welds for PWSCC in accordance with the requirements of ASME Code Case N-722-1 subject to conditions in 10 CFR 50.55a(g)(6)(ii)(E)(1). The bare metal VEs are performed on these welds to monitor for the potential PWSCC. Since the proposed RI-ISI program does not address the bare metal VEs of Alloy 600/82/182 DM butt welds, this augmented inspection will remain in effect.

- Augmented inspection program for the PWSCC susceptible Alloy 600/82/182 DM butt welds pursuant to 10 CFR 50.55a(g)(6)(ii)(F):

This program addresses examinations of Alloy 600/82/182 DM butt welds for PWSCC in accordance with the requirements of ASME Code Case N-770-1, subject to conditions in 10 CFR 50.55a(g)(6)(ii)(F)(1). The requirement of 10 CFR 50.55a(g)(6)(ii)(F) takes precedence, even though the examination of Alloy 600/82/182 DM butt welds due to PWSCC is considered administratively in the RI-ISI program. The licensee will remove the Alloy 600/82/182 DM butt welds that are not susceptible to other degradation mechanism from the RI-ISI program. The licensee will consider the Alloy 600/82/182 DM butt welds that are susceptible to another degradation mechanism other than PWSCC in the RI-ISI program in the same population as those subject to the additional degradation mechanism. This augmented inspection will remain in effect.

- Augmented inspection program for Class 2 piping with less than 0.375-inch wall thickness (NUREG-0797, Supplement Number 26, "Safety Evaluation Report related to the operation of Comanche Peak Steam Electric Station, Unit 2," Section 6.6):

This program addresses volumetric examinations on 7.5 percent of the Class 2 piping welds (pipes with thickness less than 0.375 inches) in portions of the containment spray and residual heat removal systems during each 10-year ISI interval. The licensee included this piping in the scope of the RI-ISI process, therefore, this augmented inspection program is subsumed by the proposed RI-ISI program.

Based on the above, the NRC staff determined that the proposed RI-ISI program for the third 10-year ISI interval met the five key principles of risk-informed regulation and, therefore, provides an acceptable level of quality and safety.

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed alternative provides an acceptable 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)(1). Therefore, the NRC staff authorizes the use of this proposed alternative at CPNPP, Unit 2, for the third 10-year ISI interval, 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 approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributors: Ali Rezai, NRR/DE/EPNB
Mihaela Biro, NRR/DRA/APLA

Date: September 18, 2015

R. Flores

- 2 -

If you have any questions, please contact Balwant K. Singal at 301-415-3016 or via e-mail at Balwant.Singal@nrc.gov.

Sincerely,

/LRegner For/

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-446

Enclosure:
Safety Evaluation

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