



LIC-16-0016
April 11, 2016

10 CFR 50.55a

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

Fort Calhoun Station (FCS), Unit 1
Renewed Facility Operating License No. DPR-40
NRC Docket No. 50-285

Subject: Proposed Alternative to Utilize Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1"

Reference: Letter from Exelon Generation Company, LLC (D. T. Gudger) to NRC (Document Control Desk), "Proposed Alternative to Utilize Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1,"" dated January 28, 2016 (ML16029A003)(RS-16-041)

In accordance with 10 CFR 50.55a(z)(2), the Omaha Public Power District (OPPPO) is requesting a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," on the basis that 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. Specifically, OPPPO is requesting to apply the evaluation methods of ASME Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," to Class 2 and 3 moderate energy piping including elbows, bent pipe, reducers, expanders, and branch tees.

There are no commitments contained in this submittal.

Please see the Attachment, Reference 1, for the following 3 items:

1. Marked-up Version of ASME Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1"
2. ASME Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1"
3. Technical Basis for Proposed Fourth Revision to ASME Code Case N-513

We request your review and approval of this request by February 28, 2017.

If you should have any questions or require additional information, please contact Mr. Bradley H. Blome at 402-533-7270.

Respectfully,

A handwritten signature in black ink, appearing to read "Shane M. Marik". The signature is fluid and cursive, with the first name "Shane" being more prominent.

Shane M. Marik
Site Vice President and CNO

SMM/TJH/epm

Attachment: Proposed Alternative to Utilize Code Case N-513-4

c: M. L. Dapas, NRC Regional Administrator, Region IV
C. F. Lyon, NRC Senior Project Manager
S. M. Schneider, NRC Senior Resident Inspector

Proposed Alternative to Utilize Code Case N-513-4

**10 CFR 50.55a RELIEF REQUEST:
Request to Use Code Case N-513-4 in
Accordance with 10 CFR 50.55a(z)(2), Revision 0**

1. ASME Code Component(s) Affected:

All American Society of Mechanical Engineers (ASME), Section XI, Class 2 and 3 components that meet the operational and configuration limitations of Code Case N-513-4, paragraphs 1(a), 1(b), 1(c), and 1(d).

2. Applicable Code Edition and Addenda:

<u>PLANT</u>	<u>INTERVAL</u>	<u>EDITION</u>	<u>START</u>	<u>END</u>
Fort Calhoun Station, Unit 1	Fourth	1998 Edition, through 2000 Addenda	October 31, 2003	June 6, 2017*

*Fort Calhoun has extended the fourth ISI Interval to June 6, 2017 as allowed by IWA-2430(d)(1) and IWA-2430(e) as noted in Reference 3.

3. Applicable Code Requirement:

ASME Code, Section XI, IWC-3120 and IWC-3130 require that flaws exceeding the defined acceptance criteria be corrected by repair/replacement activities or evaluated and accepted by analytical evaluation. ASME Code, Section XI, IWD-3120(b) requires that components exceeding the acceptance standards of IWD-3400 be subject to supplemental examination, or to a repair/replacement activity.

4. Reason for Request:

In accordance with 10 CFR 50.55a(z)(2), the Omaha Public Power District (OPPD) is requesting a proposed alternative from the requirement to perform repair/replacement activities for degraded Class 2 and 3 piping whose maximum operating temperature does not exceed 200°F and whose maximum operating pressure does not exceed 275 psig. Moderately degraded piping could require a plant shutdown within the required action statement timeframes to repair observed degradation. Plant shutdown activities result in additional dose and plant risk that would be inappropriate when a degraded condition is demonstrated to retain adequate margin to complete the component's function. The use of an acceptable alternative analysis method in lieu of immediate action for a degraded condition will allow OPPD to perform additional extent of condition examinations on the affected systems while allowing time for safe and orderly long term repair actions if necessary. Actions to remove degraded piping from service could have a detrimental overall risk impact by requiring a plant shutdown, thus requiring use of a system that is in standby during normal operation. Accordingly, compliance with the current code requirements results in a hardship without a compensating increase in the level of quality and safety.

ASME Code Case N-513-3 does not allow evaluation of flaws located away from attaching circumferential piping welds that are in elbows, bent pipe, reducers, expanders, and branch tees. ASME Code Case N-513-3 also does not allow evaluation of flaws located in heat exchanger external tubing or piping. ASME Code Case N-513-4 provides guidance for evaluation of flaws in these locations.

5. Proposed Alternative and Basis for Use:

OPPD is requesting approval to apply the evaluation methods of ASME Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," to Class 2 and 3 components that meet the operational and configuration limitations of Code Case N-513-4, paragraphs 1(a), 1(b), 1(c), and 1(d) in order to avoid accruing additional personnel radiation exposure and increased plant risk associated with a plant shutdown to comply with the cited Code requirements.

The NRC issued Generic Letter 90-05 (Reference 2), "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping (Generic Letter 90-05)," to address the acceptability of limited degradation in moderate energy piping. The generic letter defines conditions that would be acceptable to utilize temporary non-code repairs with NRC approval. The ASME recognized that relatively small flaws could remain in service without risk to the structural integrity of a piping system and developed Code Case N-513. NRC approval of Code Case N-513 versions in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," allows acceptance of partial through-wall or through-wall leaks for an operating cycle provided all conditions of the Code Case and NRC conditions are met. The Code Case also requires the Owner to demonstrate system operability due to leakage.

The ASME recognized that the limitations in Code Case N-513-3 were preventing needed use in piping components such as elbows, bent pipe, reducers, expanders, and branch tees and external tubing or piping attached to heat exchangers. Code Case N-513-4 was approved by the ASME to expand use on these locations and to revise several other areas of the Code Case. Reference 1, Attachment 2 provides a marked-up N-513-3 version of the Code Case to highlight the changes compared to the NRC approved N-513-3 version. Reference 1, Attachment 3 provides the ASME approved Code Case N-513-4. The following provides a high level overview of the Code Case N-513-4 changes:

1. Revised the maximum allowed time of use from no longer than 26 months to the next scheduled refueling outage.
2. Added applicability to piping elbows, bent pipe, reducers, expanders, and branch tees where the flaw is located more than $(R_o t)^{1/2}$ from the centerline of the attaching circumferential piping weld.
3. Expanded use to external tubing or piping attached to heat exchangers.
4. Revised to limit the use to liquid systems.
5. Revised to clarify treatment of Service Level load combinations.
6. Revised to address treatment of flaws in austenitic pipe flux welds.
7. Revised to require minimum wall thickness acceptance criteria to consider longitudinal stress in addition to hoop stress.
8. Other minor editorial changes to improve the clarity of the Code Case.

Detailed discussion of significant changes in Code Case N-513-4 when compared to NRC approved Code Case N-513-3 is provided in Reference 1, Attachment 4.

In summary, OPPD will apply ASME Code Case N-513-4 to evaluation of Class 2 and 3 components that are within the scope of the Code Case. Code Case N-513-4 utilizes technical evaluation approaches that are based on principals that are accepted in other Code documents already acceptable to the NRC. The application of this code case will maintain acceptable structural and leakage integrity while minimizing plant risk and personnel exposure by minimizing the number of plant transients that could be incurred if degradation is required to be repaired based on ASME Section XI acceptance criteria only.

6. Duration of Proposed Alternative:

The proposed alternative is for use of Code Case N-513-4 for Class 2 and Class 3 components within the scope of the Code Case. A Section XI compliant repair/replacement will be completed prior to exceeding the next refueling outage or allowable flaw size, whichever comes first. This relief request will be applied for the duration of the inservice inspection interval defined in Section 2 of this relief request or such time as the NRC approves Code Case N-513-4 in Regulatory Guide 1.147 or other document. If a flaw is evaluated near the end of the interval and the next refueling outage is in the subsequent interval the flaw may remain in service under this relief request until the next refueling outage.

7. Precedent:

None.

8. Reference:

1. Letter from Exelon Generation Company, LLC (D. T. Gudger) to NRC (Document Control Desk), "Proposed Alternative to Utilize Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1,"" dated January 28, 2016 (ML16029A003)(RS-16-041)
2. NRC Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping (Generic Letter 90-05)"
3. Letter from OPPD (Louis P. Cortopassi) to NRC (Document Control Desk) "Revised Fourth Ten-Year Interval Inservice Inspection (ISI) Interval," dated November 3, 2014 (ML14308A658) (LIC-14-0099)