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OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

June 27, 2003
LIC-03-0091

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

References:
1. Docket No. 50-285
2. Letter from OPPD (R. T. Ridenoure) to NRC (Document Control Desk) dated November 5, 2002, Submittal of the Fort Calhoun Station (FCS) Inservice Inspection (ISI) Program Plan for the Fourth 120 Month Interval (2003-2013) (LIC-02-0123)
3. Letter from NRC (A. B. Wang) to OPPD (R. T. Ridenoure) dated May 13, 2003, Request for additional information – Inservice Inspection (ISI) Program plan for the Fourth Operating Interval submittal for the FCS, Unit No.1 (TAC No. MB7241) (NRC-03-100)

SUBJECT: Response to Request for Additional Information, 4th Interval for ISI Program Submittal

In support of relief requests, "Submittal of the Fort Calhoun Station (FCS) Inservice Inspection (ISI) Program Plan for the Fourth 120 Month Interval (2003-2013)" (Reference 2), the Omaha Public Power District (OPPD) provides the attached response to the Nuclear Regulatory Commission's (NRC's) Request for Additional Information of Reference 3.

I declare under penalty of perjury that the forgoing is true and correct. (Executed on June 27, 2003). No commitments to the NRC are made in this letter.

If you have any questions or require additional information, please contact Dr. R. L. Jaworski of the FCS Licensing staff at (402) 533-6833.

Sincerely,

R. T. Ridenoure
Division Manager
Nuclear Operations

A047

RTR/RLJ/rlj

Attachment

c: Thomas P. Gwynn, Acting Regional Administrator, NRC Region IV
A. B. Wang, NRC Project Manager
J. G. Kramer, NRC Senior Resident Inspector

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION ON FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL REQUESTS FOR RELIEF FOR OMAHA PUBLIC POWER DISTRICT FORT CALHOUN STATION DOCKET NUMBER 50-285

1. NRC'S BACKGROUND AND SCOPE STATEMENT

By letter dated November 5, 2002, the licensee, Omaha Public Power District, submitted the Fort Calhoun Station (FCS) Inservice Inspection (ISI) Program Plan for the fourth operating interval. Included in the plan are Requests for Relief RR-1 through RR-9 proposing alternatives to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. The requests for relief are for the fourth 10-year inservice inspection (ISI) interval, in which FCS adopted the 1998 Edition, through 2000 Addenda, of ASME Section XI as the Code of record. In addition, in accordance with 10 CFR 50.55a, the licensee must meet the ultrasonic qualification requirements set forth in the 1995 Edition with 1996 Addenda of ASME XI, Appendix VIII.

In accordance with 10 CFR 50.55a(a)(3)(i), the licensee has proposed alternatives for certain requirements contained in ASME Section XI. The licensees proposed alternatives must provide an acceptable level of quality and safety, as compared with Code. For alternatives proposed in accordance with 10 CFR 50.55a(a)(3)(ii), the licensee must show there is a hardship or burden associated with performing the original requirement, and that no compensating increase in quality or safety will occur if the original requirement is imposed.

Pacific Northwest National Laboratory (PNNL) reviewed the information submitted by the licensee, and based on this review, requires the following information to determine if the licensee's alternatives meet the Regulation and to complete the evaluation.

2. REQUEST FOR ADDITIONAL INFORMATION

2.1 NRC's General Information:

2.1(a) The licensee has listed ASME Section XI, 1998 Edition through 2000 Addenda as the Code of reference for the fourth interval at FCS. The interval start date is stated to be September 26, 2003. According to 10 CFR 50.55a(g)(4)(ii), licensees must use the latest

Edition/Addenda incorporated by reference in 10 CFR 50.55a(b) that is in effect twelve (12) months prior to the start of the inspection interval. For the FCS fourth interval start date, this would be the 1995 Edition with 1996 Addenda of ASME Section XI. The Staff realizes that the Final Rule on Industry Codes and Standards (Volume 67, Number 187) was published in the Federal Register on September 26, 2002. However, the effective date of the Final Rule is October 28, 2002.

However, it has been brought to the Staff's attention that the licensee, by letter dated February 14, 2003, requested approval to use the later Code Edition (1998 Edition with 2000 Addenda). Subsequent to discussions on this matter, the licensee elected to extend the third inservice inspection interval until October 31, 2003, as allowed by Code. Thus, the new fourth interval start date would be November 1, 2003, and no relief is required. Please confirm this schedule change, and state that the current operating license will not exceed 40 years, i.e., the fourth interval shall be shortened to accommodate the extension in the third interval.

Also, by previous submittal dated December 20, 2002, the licensee requested relief for items in the third interval. Please revise the submittal for the third interval response to the NRC request for additional information (RAI) to indicate the new end date.

FCS Response: The Third Interval end date is planned for October 31, 2003. The Fourth Ten-Year Interval will start November 1, 2003 and end September 26, 2013. The Fourth Interval will not exceed the current 40 year operating license.

2.2 **Request for Relief RR-2, Use of Code Case N-498-1, Alternative Rules for 10-Year Hydrostatic Testing for Class 1, 2 and 3 Systems**

2.2(a) The licensee has requested to use Code Case N-498-1 during the fourth interval at FCS. This Code Case has been approved for use in Revision 12 of Regulatory Guide 1.147 with no additional conditions. However, Code Cases must be used in their entirety. The licensee's alternative proposal is unclear:

1) Is the intent to use N-498-1 for Class 3 systems only? If so, explain why the Code Case cannot be applied to all Class 1, 2 and 3 components at FCS.

2) The licensee states that Supplement 12 to the 1998 Edition of Nuclear Code Cases limits the applicability of this case to the 1992 Edition with the 1993 Addenda. Further, the licensee states that the basis for the applicability limitation was the issuance of subsequent revisions to the case. However, subsequent revisions to N-498-1, i.e., -2, -3 and -4 are not acceptable for use because the Staff has determined

that elimination of hold times is not acceptable. Please clarify exactly what is proposed and why a problem exists with using the requirements in the 1992 Edition for hydrostatic tests to be performed under N-498-1.

FCS Response: Code Case N-498-1 is approved for use by the NRC. Code Case N-498-1 will be applied to Class 1, 2, and 3 FCS piping. This Relief Request is withdrawn and the code case will be added to the FCS ISI Program Plan.

2.3 **Request for Relief RR-3, Use of Code Case N-648-1, Alternative Requirements for Inner Radius Examination of Class 1 Reactor Vessel Nozzles**

2.3(a) The Staff has not approved the use of N-648-1, and it would be inappropriate to circumvent the review process for this Code Case. However, several licensees have been authorized to use an enhanced visual examination as an alternative to the volumetric examination of the inner radius sections of Class 1 nozzles if it can be shown that the volumetric examination places an undue burden or hardship on the licensee with no compensating increase in quality or safety. The conditions for the enhanced visual examination are listed in the Final Rule on Industry Codes and Standards (Volume 67, Number 187), September 26, 2002, Section 2.2.8, *IWB Examination Requirements*. It should be noted these enhanced visual parameters were aimed at inner radius examinations in steam generator and pressurizer nozzles, where high radiation exposures would be incurred by manual ultrasonic examinations, not reactor pressure vessel (RPV) nozzles that are inspected via remote tooling.

In addition, several BWR licensees have also been authorized this type of alternative for certain RPV nozzles, but not on a generic basis, as would be the application in N-648-1. Please re-submit RR-3 as an alternative, not referencing Code Case N-648-1, but providing detailed information to support evaluation under 10 CFR 50.55a(3)(ii), i.e., describe the burden associated with the current volumetric application, and why no compensating increase in quality or safety would be realized by the ultrasonic examination of the inner radius as opposed to an enhanced visual examination.

FCS Response: This Relief Request is withdrawn.

2.4 **Request for Relief RR-5, Use of Code Case N-568, Alternative Examination Requirements for Welded Attachments**

2.4(a) This Code Case has been reviewed by the Staff and found unacceptable for use, as listed in Draft Regulatory Guide DG-1091, *Inservice Inspection Code case Acceptability* (Proposed Revision 13 to Regulatory Guide 1.147). The bases for not accepting N-568 is stated as:

"The Code Case does not require: (1) examination of similar attachments which may be unobstructed in lieu of the obstructed attachment; (2) an evaluation of the acceptability of examinations with limited coverage; and (3) considerations of alternative examinations in cases (1) and (2)."

The licensee may withdraw this request, propose a new alternative that addresses the issues above, or simply leave RR-5 "as is". However, Code Case N-568 will not be acceptable for use during the fourth interval at FCS.

FCS Response: This Relief Request is withdrawn.

2.5 **Request for Relief RR-6, Alternative to Removal of Insulation from Bolted Connections on Borated Systems**

2.5(a) The licensee has proposed an alternative to removal of insulation at bolted connections during the conduct of visual VT-2 leakage tests. The alternative is similar to Code Case N-533-1, which has been tentatively approved for use in Draft Regulatory Guide DG-1091, *Inservice Inspection Code case Acceptability* (Proposed Revision 13 to Regulatory Guide 1.147), with the condition that a four-hour hold time be maintained prior to the VT-2 visual examination.

The alternative proposed appears to be in compliance with Code Case N-533-1. It is unclear why N-533-1, with the condition stated above, cannot be applied at FCS. Identify and provide a detailed justification for any deviations from the Code Case, or other Code requirements, in order to support the evaluation of this alternative.

FCS Response: This Relief Request is revised to request use of Code Case N-533-1 with the condition that a four-hour hold time be maintained prior to the VT-2 visual examination.

2.6 Request for Relief RR-7, Alternative to Removal of Bolts at Bolted Connections

2.6(a) The licensee has proposed an alternative to corrective actions prescribed in IWA-5250(a)(2) for leakage detected at bolted connections during visual VT-2 pressure tests. The alternative is similar to Code Case N-566-1, which has been tentatively approved for use in Draft Regulatory Guide DG-1091, *Inservice Inspection Code case Acceptability* (Proposed Revision 13 to Regulatory Guide 1.147) with no conditions.

The alternative proposed appears to be in compliance with, or more restrictive than, Code Case N-566-1. It is unclear why N-566-1 cannot be applied at FCS. Identify and provide a detailed justification for any deviations from the Code Case, or other Code requirements, in order to support the evaluation of this alternative.

FCS Response: This Relief Request is revised to request use of Code Case N-566-1.

2.7 Request for Relief RR-8, Use of Alternative to Appendix VIII, Supplement 10, Qualification Requirements for Dissimilar Metal Piping Welds

2.7(a) On page 7-37 of the licensee's request (enclosure showing changes between Appendix VIII, Supplement 10 and proposed PDI alternative), Section 4.0, item (d), it is stated that "To qualify new values of essential variables, at least one personnel qualification set is required." It is unclear whether this is intended to require at least one *successful* personnel qualification with the new essential variables, or simply to include the number of specimens equal to one qualification set. Please clarify.

FCS Response:

(1) Fort Calhoun Station (FCS) will require a minimum of one personnel qualification set composed of a number of specimens for inspector qualification with new essential variables. This will ensure that the personnel being qualified are unable to predict the flaws in the test set and are not biased by pre-conceived expectations of the type and number of flaws present in the test sample.

(2) There are many essential variables with a broad range of applicability. For example, a typical piping procedure may address Supplement 2 austenitic welds and include intergranular stress corrosion cracking (IGSCC). In this particular case, a personnel test set would consist of a minimum of ten (10) austenitic flaws, accompanied by a minimum of four (4) additional IGSCC flaws. If a new essential variable were applicable to both, then all the above flaws would be included. If it were only applicable to IGSCC, a minimum of four additional IGSCC flaws would be included. It is intended that the qualification be successful (e.g., all flaws are detected/sized as

appropriate), and that it include the number of flawed/unflawed grading units equal to one qualification set.

2.8 **Request for Relief RR-9, Use of Alternative to Appendix VIII, (Proposed) Supplement 14, Combined Qualification Requirements for Piping Welds Examined from the Inner Diameter**

2.8(a) Please indicate whether the alternative (including the comparison enclosure) provided in the licensee's request is the most current Supplement 14 version of the proposed PDI alternative.

2.8(b) The licensee's proposal is aimed at piping welds that are examined from the inner diameter surface using remote automated techniques. The licensee argues that to impose separate qualifications, as currently required by Supplements 2, 3 and 10, is excessive because the ultrasonic essential variables used for dissimilar metal, austenitic, and ferritic welds (when performed from the inner diameter) will be the same. Therefore, it is expected that the inner diameter applications may not be confronted with the same acoustic limitations, i.e., attenuation and beam redirection effects, as methods applied from the outside surface of these piping welds. However, situations may arise that may result in less than two sided examinations.

(1) It is unclear how the qualification of far-side examinations will be implemented. Provide a discussion on the implementation of far-side examinations for the different supplements.

(2) It is unclear how the coverage of far-side examinations will be determined. Provide a discussion on coverage of far-side examinations for the different supplements.

FCS Response: When applying Supplement 14, the following examination coverage criteria requirements and associated qualifications are appropriate and planned:

(1) Piping must be examined in two axial directions, and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available. Dissimilar metal welds must be examined axially and circumferentially.

(2) Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where

examination from both sides is not possible on austenitic welds or dissimilar metal welds, full coverage credit from a single side may be claimed only after completing a successful single-sided demonstration using flaws on the opposite side (far-side) of the weld. Dissimilar metal weld qualifications must be demonstrated from the austenitic side of the weld and may be used to perform examinations from either side of the weld. To date all qualifications performed from the inside surface have been demonstrated with dual side access with scanning allowed from all four directions. This is consistent with how the examinations are performed in the field.