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Docket No. 50-461

Document Control Desk
Nuclear Regulatory Commission
Washington, D.C. 20555

10CFR50.55a

Subject: Request for Authorization Pursuant to 10CFR50.55a
to Utilize ASME Section XI Code Case N-524

Dear Madam or Sir:

The purpose of this letter is to request approval for use of American Society of Mechanical Engineers (ASME) Section XI, Division 1 Code Case N-524, "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping," to fulfill ASME Section XI nondestructive examination requirements for longitudinal welds on piping components in the reactor recirculation system and on elbows in the main steam system at Clinton Power Station (CPS). Code Case N-524 has been approved by the ASME Boiler and Pressure Vessel Code Committee and was published August 9, 1993 but is not included in the most recent listing of Nuclear Regulatory Commission approved Code Cases in Revision 11 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability-ASME Section XI Division 1." A copy of Code Case N-524 is provided for convenience as Attachment 1 to this letter.

10CFR50.55a, "Codes and Standards," requires that systems and components of boiling and pressurized water-cooled nuclear power reactors must meet the requirements of the ASME Boiler and Pressure Vessel Code as specified in certain paragraphs of 10CFR50.55a. Subsection 10CFR50.55a(a)(3) states that proposed alternatives to the requirements of those particular paragraphs of 10CFR50.55a may be used when authorized by the Director of the Office of Nuclear Reactor Regulation. This subsection further states the applicant shall demonstrate (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements of 10CFR50.55a would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10CFR50.55a(g), "Inservice Inspection Requirements," Illinois Power is required to perform inservice inspection of Code Class 1, 2 and 3 components (including supports) in accordance with Section XI of the Code for the Edition and Addenda to which IP is committed for the initial 120-month inspection interval for CPS.

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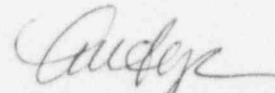
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However, as further discussed in Attachment 2 to this letter, and pursuant to 10CFR50.55a(a)(3), IP requests approval to utilize Code Case N-524 for performing nondestructive examination of longitudinal welds on particular piping components at CPS as an alternative to the particular ASME Section XI nondestructive examination requirement to which IP is currently committed.

It should be noted that the sixth refueling outage (RF-6) for CPS is currently scheduled to begin October 13, 1996. RF-6 provides the next opportunity to perform the required examinations for a portion of the affected piping components. As IP desires to utilize Code Case N-524 for the examinations to be performed during RF-6, IP requests NRC approval as soon as possible in advance of RF-6 so that appropriate planning for the outage can be completed.

Your prompt attention to this matter is appreciated.

Sincerely yours,



Michael W. Lyon
Director-Licensing

TBE/csm

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

CASE
N-524

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: August 9, 1993

See Numerical Index for expiration
and any reaffirmation dates.

Case N-524

Alternative Examination Requirements for
Longitudinal Welds in Class 1 and 2 Piping
Section XI, Division 1

Inquiry: What alternative requirements may be applied to the surface and volumetric examination of longitudinal piping welds specified in Table IWB-2500-1, Examination Category B-J, Table IWC-2500-1, Examination Categories C-F-1 and C-F-2 (Examination Category C-F prior to Winter 1983 Addenda), and Table IWC-2520, Examination Category C-G (1974 Edition, Summer 1975 Addenda)?

Reply: It is the opinion of the Committee that the following shall apply:

(a) When only a surface examination is required, examination of longitudinal piping welds is not required beyond those portions of the welds within the examination boundaries of intersecting circumferential welds.

(b) When both surface and volumetric examinations are required, examination of longitudinal piping welds is not required beyond those portions of the welds within the examination boundaries of intersecting circumferential welds provided the following requirements are met.

(1) Where longitudinal welds are specified and locations are known, examination requirements shall be met for both transverse and parallel flaws at the intersection of the welds and for that length of longitudinal weld within the circumferential weld examination volume;

(2) Where longitudinal welds are specified but locations are unknown, or the existence of longitudinal welds is uncertain, the examination requirements shall be met for both transverse and parallel flaws within the entire examination volume of intersecting circumferential welds.

Request to Utilize ASME Section XI Code Case N-524, "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping"

Per the Edition of Section XI of the ASME Code (the Code) to which IP is committed for the initial 120-month inspection interval for Clinton Power Station (CPS), ASME Section XI, 1980 Edition through Winter 1981 Addenda, Examination Category B-J of Table IWB-2500-1, Item Number B9.12 requires nondestructive examination of longitudinal welds on Class 1 piping components for at least one pipe diameter length but not more than 12 inches, as measured from the intersection of the circumferential weld and longitudinal weld. CPS has longitudinal welds on all piping components in the reactor recirculation system and on elbows in the main steam system, for a total of 246 longitudinal welds in the associated Class 1 piping components. Out of the 246 welds, 47 of them have been examined to date (during previous refueling outages). 18 more longitudinal welds are currently scheduled to be examined during the next refueling outage (i.e., the sixth refueling outage for CPS, scheduled to begin October 13, 1996). CPS does not have any longitudinal welds in Class 2 piping components.

ASME Code Case N-524 dated August 9, 1993, entitled "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping - Section XI, Division 1," provides an alternative means approved by the ASME for satisfying the nondestructive examination requirements of the Code for longitudinal welds in Class 1 and 2 piping. Code Case N-524 significantly reduces the required examination volume or surface area for such welds. It does this by limiting the examination of a longitudinal weld to the volume or area contained within the examination requirements of the intersecting circumferential weld, i.e., the area of most concern. Code Case N-524 focuses on examining the intersecting circumferential weld which, for surface examinations includes the circumferential weld out to 1/2 inch on both sides of the weld crown, and for volumetric examinations includes the lower one third of the volume within the 1/2-inch boundaries. This approach significantly reduces examination time requirements and radiation exposure to examination personnel, but still meets the intent of the Code examination requirement.

Longitudinal welds are fabricated during the piping manufacturing process under controlled conditions that produce high quality welds. Results of the preservice examination and inservice examinations performed at CPS and throughout the industry have provided assurance of the structural integrity of longitudinal welds. Experience in the nuclear industry has shown that longitudinal seam welds do not warrant continued examination beyond the boundaries required to meet the circumferential weld examination requirements. Approval and issuance of Code Case N-524 by the ASME is consistent with this experience. There is no known material degradation mechanism that has been

evident to date which specifically relates to longitudinal seam welds in nuclear plants. If any degradation associated with a longitudinal weld was to occur, it would be located at the intersection with a circumferential weld. Code Case N-524 thus focuses examination efforts at the weld intersection.

Because Code Case N-524 eliminates examination of the longitudinal weld beyond the intersection with a circumferential weld, it significantly reduces examination time requirements, thus reducing the cost of such examinations and radiation exposure to examination personnel. In addition to the person-rem savings obtained by reduced examination time, additional benefits can be gained due to the significant reduction of dose and effort associated with removing/reinstalling insulation and interferences (component supports) and preparing the welds for examination.

Code Case N-524 provides alternative, ASME-sanctioned, examination requirements for ASME Class 1 and 2 longitudinal piping weld examinations. Considering that such alternate examination requirements exist, significant and unnecessary radiation exposure and examination costs could be avoided by performing these examinations in accordance with Code Case N-524, in lieu of the Code required examinations currently applicable to CPS. The use of Code Case N-524 at CPS would continue to provide an acceptable level of quality and safety with respect to the examination of pressure-retaining welds in the subject piping.