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SUBJECT: Responds to NRC 881103 ltr re violations noted in Insp Rept
 50-316/88-24.

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AEP:NRC:1060K

Donald C. Cook Nuclear Plant Unit No. 2
Docket No. 50-316
License No. DPR-74
NRC INSPECTION REPORT NO. 50-316/88024; RESPONSE TO VIOLATION

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

Attn: A. B. Davis

December 5, 1988

Dear Mr. Davis:

This letter is in response to J. J. Harrison's letter dated November 3, 1988, that forwarded the report on a special safety inspection conducted by the NRC NDE Mobile Team of the NRC's Region I office. This inspection was conducted from September 5 through September 15, 1988, on activities at the Donald C. Cook Nuclear Plant Unit No. 2. The Notice of Violation attached to Mr. Harrison's letter identified two violations, one of which requires a written response. The response to this violation is provided in the attachment to this letter.

This document has been prepared following Corporate procedures that incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Sincerely,

A handwritten signature in dark ink, appearing to read 'M. P. Alexich', written in a cursive style.

M. P. Alexich
Vice President

MPA/eh

Attachment

cc: D. H. Williams, Jr.
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
G. Bruchmann
NRC Resident Inspector - Bridgman

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ATTACHMENT TO AEP:NRC:1060K

RESPONSE TO VIOLATION

I. NRG VIOLATION

As a result of the inspection conducted on September 6-15, 1988, and in accordance with the "General Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1988), the following violation was identified:

"10 CFR 50, Appendix B, Criterion IX requires that special processes, such as nondestructive testing, be controlled and accomplished using a qualified procedure in accordance with applicable codes and standards.

Site radiographic procedure FQP 9.4 invokes Section V of the 1983 ASME Boiler and Pressure Vessel Code including the Summer 1984 Addenda. ASME Section V, Article 1 requires that special techniques when used shall be capable of detecting code rejectable discontinuities. Articles 2 and 22 require the direction of the central beam of radiation to be perpendicular to the recording surface (film) when performing radiography.

Contrary to the above, it was disclosed that while performing radiography of a girth weld in steam generator number 21, the source was not positioned perpendicular to the recording surface (film). Subsequent radiography performed by NRC inspectors identified Code rejectable defects in the weld that had not been identified by the licensee.

This is a Severity Level IV violation (Supplement I)."

II. RESPONSE TO VIOLATION

The violation cited in NRC Inspection Report 50-316/88-24 was in regard to the use of a radiographic technique not in accordance with ASME Code requirements during steam generator replacement project (SGRP) activities at Cook Nuclear Plant, Unit 2. The violation cited was for use of a radiographic technique in which the source was positioned 23° off the centerline of the steam generator girth weld, which the inspector determined was not in accordance with ASME Section V, Article 2, Paragraph T-273 of the Winter 1985 (or later) version of the Code. (References made to the ASME code in our response are to the same version[s].)

While performing steam generator upper assembly to transition cone girth welds, it was our practice to perform informational radiography while maintaining preheat, so any unacceptable indications could be removed prior to cooldown. For these informational radiographs, the source was positioned inside the steam generator for a panoramic exposure. These exposures were at an angle to the weld centerline so that the radiation beam did not pass through

the steam drum internals. The film was elevated off the hot weld surface 6" to prevent overheating. These "hot" informational radiographs were followed by "cold" informational radiographs with film in contact with the weld, then final Code-acceptance radiographs after postweld heat treatment.

Due to the steam drum internal configuration, it was initially determined that the most practical method to radiograph the steam generator girth welds was to position the panoramic source above the girth weld and wrapper transition section. Although ASME Section V, Article 2, "Radiographic Examination," Paragraph T-273, recommends that "the direction of the central beam of radiation should be centered on the area of interest whenever practical," the Code is flexible regarding the radiographic set-up, provided the technique is demonstrated to be satisfactory. ASME Section V, T-221, states that a technique is demonstrated to be satisfactory when density and penetrometer image requirements are met. The angled technique used for informational radiographs on the steam generator girth welds was demonstrated to be within Code density limits and yielded sensitivity in excess of Code requirements.

As described in the Notice of Violation, the NRC examination revealed rejectable indications that had not been identified by the SGRP contractor. The NRC examination occurred before completion of our acceptance process, which includes review and final acceptance by AEP personnel certified to interpret radiographic film. Though the contractor's angled technique was Code demonstrated, given the results of the NRC examination an enhanced technique was developed to radiograph the steam generator girth welds.

III. CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

On September 14, 1988, the technique used for informational and Code-acceptance radiographs was changed from a single off-center panoramic shot to six segmented shots which allowed the radiographic source to be centered on the steam generator girth weld. Type "T" film was used on both informational and Code-acceptance radiographs.

The enhanced technique was demonstrated to meet Code density and sensitivity requirements. Final Code radiography has been performed and accepted using the enhanced technique on all Unit 2 steam generator upper assembly to transition cone girth welds.

IV. CORRECTIVE ACTIONS TO AVOID FURTHER VIOLATIONS

1. Independent in-process reviews of radiographic film were initiated on the steam generator girth, main steam, and feedwater welds. These reviews were performed by certified personnel from the I&M Construction Department and also from a contractor to SGRP Quality Assurance.
2. Ultrasonic testing was used to supplement radiography when required in determining indication depth, and to ensure indication removal.

V. DATE OF FULL COMPLIANCE

Full compliance was achieved on October 30, 1988, when all four Unit 2 steam generator upper assembly to transition cone girth weld Code-acceptance radiographs were completed using the six segment, centered technique. The film sensitivity exceeded ASME Code requirements. All radiographs were reviewed and approved by our construction contractor, an inspector for the Authorized Inspection Agency, and the I&M Construction Department.

VI. OTHER WELDING ISSUES

Though not cited as a violation, the summary section of Inspection Report No. 50-316/88024 raises a concern with regard to slag entrapment in the steam generator girth welds. This problem had been identified and the following resolution was being pursued prior to the NRC inspection:

1. Measures were taken to increase control and accountability of welding activities. Each girth weld was divided into segments with specific welders assigned to each segment. Two additional welding engineers were brought on site, and additional craft supervision was directed to the girth welds. This allowed us to more closely monitor welder performance and institute corrective action when necessary.
2. The girth weld joint preparation in the root area was opened up to allow better root access and reduce slag entrapment.

These actions have been effective, as demonstrated by the finished quality of these weldments.