



**INDIANA
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POWER**

A unit of American Electric Power

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September 7, 2005

AEP:NRC:5055-07

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Donald C. Cook Nuclear Plant Unit 1
Docket No. 50-315
Position Paper on Need for NRC ASME Code Relief

- References:**
- 1) Letter from E. R. Duncan, Branch Chief, Division of Reactor Projects, to M. Nazar Senior Vice President and Chief Nuclear Officer Indiana Michigan Power Company (I&M), D. C. Cook Nuclear Power Plant, Units 1 and 2, NRC Integrated Inspection Report 05000315/2005004; 05000316/2005004, dated August 4, 2005 (ML052170089).
 - 2) Letter from D. P. Fadel, I&M, to U. S. NRC Document Control Desk, Proposed Alternative to the American Society of Mechanical Engineers Code, Section XI Repair Requirements, AEP:NRC:5055-01, dated April 12, 2005 (ML051100417).

On August 4, 2005, the Nuclear Regulatory Commission (NRC) documented the following information associated with Weld 1-RC-9-01F, (Reference 1):

During the Unit 1 refueling outage, while performing UT examinations of the pressurizer Inconel alloy 82/182 welds, the licensee detected an axial flaw on pressurizer safety nozzle to safety valve inlet line weld 1-PRZ-23. By letter dated April 12, 2005, (as supplemented by letter dated April 15, 2005), the licensee requested relief to repair the weld using a weld overlay that was granted verbally on April 18, 2005.

On April 21, 2005, the licensee completed the Inconel 52 weld metal overlay repair on 1-PRZ-23. This repair extended over weld 1-RC-9-01F, which was a stainless steel safe end-to-elbow weld on the pressurizer safety relief valve line. However, the licensee did not obtain NRC approval through the relief request process to overlay this weld using techniques that deviated from the ASME [American Society of Mechanical Engineers] Section XI Code and NRC approved Code Case N-504. Specifically, the licensee applied Inconel 52 weld metal instead of low carbon stainless steel weld metal identified in Code Case N-504, which was used as a basis for this overlay repair method. Consequently, the licensee did not measure delta ferrite levels as required for the stainless steel material discussed in Code Case N-504. Therefore, on

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May 3, 2005, the inspectors identified that the licensee had failed to obtain NRC approval as required by 10 CFR 50.55.a(a)(3)(I) for the weld metal overlay applied to weld 1-RC-9-01, which was not fabricated in accordance with the ASME Section XI Code or NRC approved Code Case N-504.

On June 29, 2005, the licensee staff stated that their relief request submitted for weld 1-PRZ-23 included weld 1-RC-9-01, and that they were in compliance with Code Case N-504, therefore no further actions were required. Pending NRC review of the licensee's written response establishing their basis for compliance, this issue is considered an Unresolved Item (URI 05000315/2005004-04).

It is I&M's position that additional relief from the requirements of Section XI of the ASME Code was not required from the NRC prior to returning stainless steel weld 1-RC-9-01F to service (Reference 1, URI 05000315/2005004-04). The basis for this position is as follows:

- 1) Westinghouse document WCAP-16428-P, which was completed to facilitate the design of the weld overlay, documents the acceptability of the weld overlay repair on the pressurizer nozzle, dissimilar metal weld 1-PRZ-23, the stainless steel piping, and the stainless steel weld 1-RC-9-01F. The overlay repair was extended over the adjacent pressurizer safety nozzle stainless steel safe end weld 1-RC-9-01F to facilitate post weld non-destructive examination (NDE). Although the design of the weld overlay supported the structural replacement of weld 1-RC-9-01F, I&M had not intended to use the weld overlay as a structural replacement for weld 1-RC-9-01F. For this reason, the code relief request written to support the structural replacement of weld 1-PRZ-23 did not seek similar relief for weld 1-RC-9-01F.
- 2) Prior to performing Weld Overlay 1-PRZ-23-OVLY, I&M reviewed Code Case N-504-2 to ensure its compliance. Based on the results of this review the following information was conveyed to the NRC in Reference 2:
 - a. Paragraph (b) of Code Case N-504-2 requires that the reinforcement weld metal shall be low carbon (0.035% maximum) austenitic stainless steel. In lieu of the stainless steel weld material, a consumable welding wire highly resistant to Primary Water Stress Corrosion Cracking (PWSCC) has been selected for the overlay weld material. This material is a nickel-based alloy weld material, commonly referred to as Alloy 52, and will be applied using primarily a machine gas tungsten arc welding process. Also, limited manual gas tungsten arc welding may be required when machine welding is completed. Alloy 52 contains about 30% chromium that imparts excellent corrosion resistance to this material. This material is suitable for welding over the carbon steel nozzle, Alloy 82/182 weld material, stainless steel safe end, stainless steel weld material, and stainless steel piping as it is compatible with the existing weldment and base materials. Accordingly, this alternative provides an acceptable level of safety and quality.

- b. Paragraph (e) of Code Case N-504-2 requires as-deposited delta ferrite measurements of at least 7.5 FN for the weld reinforcement. Delta ferrite measurements will not be performed for this overlay because the deposited Alloy 52 is 100% austenitic and contains no delta ferrite due to the high nickel composition (approximately 60% nickel). Accordingly, this alternative provides an acceptable level of safety and quality.

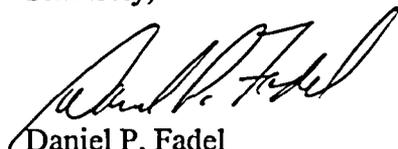
Therefore, I&M concluded the performance of delta ferrite measurements as a result, were not required.

The overlay repair was extended over the adjacent pressurizer safety nozzle stainless steel safe end weld 1-RC-9-01F to facilitate post-weld NDE. Although the design of the weld overlay supported the structural replacement of weld 1-RC-9-01F, I&M had not intended to use the weld overlay as a structural replacement for weld 1-RC-9-01F. As previously stated, the weld overlay material used was Alloy 52, which is 100% austenitic and contains no delta ferrite due to the high nickel composition (approximately 60% nickel). The code relief request written to support the structural replacement of weld 1-PRZ-23 discussed the compatibility of the weld overlay material and weld material contained in weld 1-RC-9-01F, but did not seek similar relief for weld 1-RC-9-01F. Further, the conduct of delta ferrite measurements as specified in Code Case N-504 were not required. Therefore, relief from the requirements of Section XI of the ASME Code was not required from the NRC prior to returning stainless steel weld 1-RC-9-01F to service because I&M did not take credit for the overlay as a structural replacement of 1-RC-9-01F, and our relief request for 1-PRZ-23 properly addressed that delta ferrite measurements were not required for the overlay because the deposited Alloy 52 was 100% austenitic.

I&M plans to seek code relief to credit structural replacement of the stainless steel weld 1-RC-9-01F. The subject relief request will be submitted by September 15, 2005. This action is necessary prior to the next code required NDE examinations of weld 1-RC-9-01F. The next code required NDE examination of weld 1-RC-9-01F would be required in the first period of the fourth interval (approximately 2010).

The attachment to this letter contains the commitment made in this submittal. Should you have any questions, please contact Mr. John A. Zwolinski, Safety Assurance Director, at (269) 466-2428.

Sincerely,



Daniel P. Fadel
Engineering Vice President

RM/rdw

Attachment

c: R. Aben, DLEG/BCCFS/BD
J. L. Caldwell, NRC Region III
K. D. Curry, AEP Ft. Wayne, w/o attachment
J. T. King, MPSC, w/o attachment
C. F. Lyon, NRC Washington, DC
MDEQ – WHMD/RPMWS, w/o attachment
NRC Resident Inspector

ATTACHMENT TO AEP:NRC:5055-07

REGULATORY COMMITMENTS

The following table identifies those actions committed to by Indiana Michigan Power Company (I&M) in this document. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
Submit relief request to seek code relief to credit structural replacement of the stainless steel weld 1-RC-9-01F	September 15, 2005