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April 30, 1996

AEP:NRC:0969AO
10 CFR 50.55a

Docket Nos.: 50-315
50-316

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

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
REQUEST FOR RELIEF FOR AUGMENTED REACTOR
VESSEL IN-SERVICE INSPECTION
ADDITIONAL INFORMATION

The purpose of this letter is to provide additional information in support of our augmented reactor vessel inspection relief request which was submitted July 28, 1995, (AEP:NRC:0960AI). The additional information is included as an attachment to this letter.

As is noted in our response to NRC request number two, during the examination of the unit 1 reactor vessel we found that there were three additional welds (RPV-VC1, RPV-VC2, and RPV-VC3) for which we could not obtain the required 90% examination coverage. We are revising our relief request to include these additional welds. This revised request is scheduled for submittal by May 3, 1996. The information regarding the reduced amount of the examination coverage and its causes is given in our response to the request.

If necessary, the unit 2 relief request will be similarly modified following the evaluation of the data taken during its augmented examination.

Sincerely,

E. E. Fitzpatrick
Vice President

llg

Attachment

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AEP:NRC:0969AO

cc: A. A. Blind
G. Charnoff
H. J. Miller
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett

Attachment to AEP:NRC:0969A0

Response to Additional Information Request

10 CFR 50.55a Code Relief

For the Augmented Reactor Pressure Vessel Shell Weld Examinations

for Cook Nuclear Plant Unit 1

This attachment provides supplemental information to the previously submitted relief requests related to the augmented examination of the reactor pressure vessel shell welds (ASME Code, Section XI, Category B-A, Item B1.10 welds). These questions were provided to us by the NRC on March 26, 1996, and they were discussed in a telephone conference on March 29, 1996.

The individual NRC requests and our responses are given below.

NRC Request 1

Provide more quantitative information on the expected coverage increase and impact of OD examinations for welds RPV-D (both units).

AEPSC Response

The original submittal of this code relief request was based on estimates of examination coverages. We presently have the results from the unit 1 RPV examinations conducted in October 1995. The estimate for RPV-D (lower shell to lower head circumferential weld) for unit 1 submitted originally in July 1995 was 76% compared to 69% actual obtained during the examination (See Table 1).

As we discussed in the March 29th conversation, it is not feasible to examine the unit 1 RPV-D weld from the OD for the purpose of obtaining improved coverage. At this location, the gap between the RPV OD surface and the concrete biological shield wall ID varies between 6 inches and 9 inches. The RPV shell has approximately 3 inches thick mirror insulation mounted on it. This insulation was installed as the reactor pressure vessel was lowered into the cavity and the removal of the insulation could only be accomplished by the removal of the RPV from the cavity. We therefore believe, as previously stated, that examination of the RPV-D weld from the OD will be an undue hardship and significant economic burden without commensurate increases in safety, quality, and additional information. The radiation exposure at this location is extremely high. Since weld examination from the OD surface is not a feasible alternate, we did not develop the anticipated dosage value associated with insulation removal, examination from OD and re-installation of insulation.

NRC Request 2

Discuss the possibility of increasing coverage on the VA welds, (nozzle interferences) during the performance of the code-required nozzle examinations.

AEPSC Response

During the unit 1 examinations in October 1995, every effort was made to maximize volumetric coverage. Equipment set-up was optimized to gain as much coverage of the longitudinal welds in the vicinity of the integral nozzle extensions by starting and finishing the exam scans as close to the integral extensions as equipment design would allow. This increased the examination time on the vessel due to the careful approach of the equipment to the extensions so as not to damage the vessel and/or equipment. Table 1 compares the estimated coverages for the reactor pressure vessel shell welds with the actual coverages obtained for 1995 unit 1 examination. The actual examination coverage was 62% for the RPV-VA-2, and the reason is that this longitudinal weld is located tangential to the integral nozzle extension which resulted in more examination interference.

Additionally, the radial location of the core support lugs with respect to the lower shell longitudinal welds (1RPV-VC1, 2, & 3) resulted in examination coverages of less than 90%. These limitations were not anticipated during the preparation of the original relief request. The coverage obtained for these three welds was 80% (See Table 1) with a best effort examination. As stated in our response above to NRC Concern No. 1, alternative examination from the OD surface will require removal of the RPV from the cavity and removal/re-installation of the mirror insulation. This is not practically feasible and will impose on us undue hardship and significant economic burden without commensurate increase in safety and quality. By separate letter (AEP:NRC:0969AP) we will modify our relief request to include these welds.

As an alternate, we conducted a best effort exam from the inside surface using techniques, tools, and reduced speeds which permitted maximized percentage coverage of these welds.

NRC Request 3

Discuss how data from recent unit 1 examinations confirms the estimate coverages in Table 1 (from original relief request) and the need for quantitative coverage limits for unit 2.

AEPS Response

We have provided a comparison of the unit 1 estimated values versus the actual values in Table 1. Additionally in Table 1, we have provided, as requested, a more quantitative estimate for unit 2 shell welds, based on the weld configuration, review of possible examination interferences, and unit 1 results.

NRC Request 4

Discuss how many other Item B1.10 welds are being examined and their amount of examination coverages.

AEPS Response

Table 2 lists all the Item B1.10 shell welds for units 1 & 2 which are subjected to the augmented examination. Also shown are the actual coverage for unit 1 and the estimated coverage for unit 2 based on the weld configuration, possible examination interferences, and unit 1 examination results.

Additional Requests

NRC/INEL also requested a total coverage statistic for unit 1. Table 3 provides the total linear length of the circumferential and longitudinal welds on the RPV and also the total length of all welds. The total percentage coverage for all unit 1 RPV shell welds subjected to the mandated 10 CFR 50.55 examination has been calculated to be 88.8%.

Weld I.D.	Unit 1 estimate submitted with 7/95 relief req.	Unit 2 estimate submitted with 7/95 relief req.	Unit 1 Actual results 10/95 exam	Unit 2 Updated Estimate
RPV-D	76%	Unknown	69%	70%
RPV-VA1	85%	Unknown	80%	80%
RPV-VA2	85%	Unknown	62%	80%
RPV-VA3	>90%	Unknown	99%	80%
RPV-VC1	>90%	>90%	80%	>90%
RPV-VC2	>90%	>90%	80%	>90%
RPV-VC3	>90%	*	80%	*

* Shell weld does not exist for Unit 2.

Table 1

Summary of examination coverage estimates and actual results for the Cook Nuclear Plant Reactor Pressure Vessel Shell Welds where actual Unit 1 coverages were less than or equal to 90%. (ref. ASME Section XI, Cat B-A, Item B1.10 welds).

Weld I.D.#	Unit 1 Actuals (10/95)	Unit 2 Updated Estimate
RPV-B	100%	100%
RPV-C	100%	100%
RPV-D	69%	70%
RPV-VA1	80%	80%
RPV-VA2	62%	80%
RPV-VA3	99%	80%
RPV-VB1	100%	100%
RPV-VB2	100%	100%
RPV-VB3	100%	*
RPV-VC1	80%	100%
RPV-VC2	80%	100%
RPV-VC3	80%	*

* Shell weld does not exist for Unit 2.

Table 2

Units 1 and 2 RPV shell welds which are subject to 10 CFR 50.55a augmented examination.

Unit	Length of weld (ft)	% exam coverage	Covered length (ft)	Remarks
RPV-B	48.67	100	48.67	
RPV-C	48.67	100	48.67	
RPV-D	48.67	69	33.58	
Tot. circ welds	146.01		130.92	Total % coverage for circ. welds - 89.7%
RPV-VA1	8.25	80	6.6	
RPV-VA1	8.25	62	5.12	
RPV-VA1	8.25	99	8.17	
RPV-VB1	9.08	100	9.08	
RPV-VB2	9.08	100	9.08	
RPV-VB3	9.08	100	9.08	
RPV-VC1	8.92	80	7.14	
RPV-VC2	8.92	80	7.14	
RPV-VC3	8.92	80	7.14	
Total length of longitud. welds	78.75		68.55	Tot. % coverage for Longitud. welds - 87%
Total weld length	224.75		199.47	Tot. % coverage for all RPV welds - 88.8%

Table 3

Unit 1 RPV Shell Welds Subject to 10 CFR 50.55a Augmented Examination