50.55(e)

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August 10, 1981

Mr. Boyce H. Grier, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Grier:

POTENTIAL SIGNIFICANT CONSTRUCTION DEFICIENCY
ACME EMBEDS
NO. 1 AND 2 UNITS
HOPE CREEK GENERATING STATION

On April 22, 1981, a verbal report was made to Region 1, Office of Inspection and Enforcement representative, Mr. E. Greenman, advising of a potential significant construction deficiency. An interim written report was submitted on May 26, 1981. The following information is submitted persuant to the commitments in the interim report.

1. Background

During field modification of a few embeds in April, 1981, our Architect/Engineer observed that some of the welds on these embeds exhibited undercut, porosity, and undersize conditions. The suspect embeds were supplied by Acme Steel Engineering Company of Baltimore, Maryland. Although a significant number of embeds from Acme were already encased in concrete, some were still in storage and available for inspection.

The following investigations were initiated:

a. Determine if the weld variations are unique for one release (shipment) or generic to all embeds supplied by Acme.

b. Evaluate the impact of the weld variations on the embed capacity.

c. Review the embed capacity against the actual design loadings to determine what repairs or modifications (if any) may be required.

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d. Determine if similar problems exist in embeds fabricated by other suppliers.

2. Results of Investigation of Acme Embeds

a. Based on 100% visual examination of a large number of Acme embeds from several releases, we concluded that the weld variations observed were generic for all Acme embeds. These variations were observed in limited areas and consisted of porosity, undersized welds, and undercut in excess of the AWS D1.1 Code allowables.

b. Only approximately 1% of the welds examined showed out-of-specification weld variations.

c. The effects of porosity were determined by destructive tests performed by Lehigh University. The test results indicated that the effects of porosity were insignificant. A portion of this testing was witnessed by a Region 1 Inspector (50-354/81-07).

d. The effects of undersized welds and undercut were analytically evaluated. As a very conservative assumption, the effects of maximum porosity, undercut, and undersize were combined and the effect on embed capacity was reviewed against the actual design loading. It is concluded that adequate design margin is present to accommodate the slight reduction of embed capacity.

3. Investigation of Embeds from Other Companies

Other suppliers' embeds revealed minor weld variations. These variations included undersizes and undercuts. These variations are enveloped by the variations found on Acme embeds and are therefore acceptable.

4. Conclusion

Based on sampling, testing, and analysis:

a. All Acme embeds will be used "as is".

b. All other embeds will be used "as is".

c. If the weld variations had gone uncorrected, they would not have adversely affected the safe operation of the plant and therefore are not considered reportable under 10CFR50.55(e).

Detailed reports of the testing and evaluation of the embed problem are available for your review at the jobsite. Based on these reports, we withdraw this item as a potential significant deficiency.

Very truly yours,

J J Martin

CC: Office of Inspection and Enforcement
Division of Reactor Construction Inspection
Washington, D. C.

NRC Resident Inspector - Hope Creek
Hancocks Bridge, NJ

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