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May 26, 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
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. The following information is submitted as required by 10CFR50.55(e):

1. Description of the Deficiency:

   During on-site modification of embeds purchased from Acme Steel Engineering Company of Baltimore, our Architect/Engineer, Bechtel Power Corporation, discovered weld deficiencies contrary to the purchase specification requirements. Subsequent inspection of 270 similar embeds from the same supplier found 127 that did not meet visual acceptance criteria. This inspection revealed instances of excessive porosity, excessive undercut, and undersize fillet welds. Sample testing of similar embeds for sub-surface porosity by RT and destruction (air-arc gouge) tests found fillet welds with unacceptable sub-surface porosity. Similar embeds from Acme Steel have already been installed and are no longer accessible for visual inspection.

2. Analysis of Safety Implications:

   The required analysis will be performed and the results reported to you following completion of the investigation and test program outlined below.

3. Remedial Actions:

   a. All ACME, except those installed, embeds having shear bars, anchor lugs, anchor plates and combinations, thereof, shall be visually and RT examined. Welds not

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meeting visual and RT examination acceptance criteria shall be repaired. Alternatively, embeds may be replaced with new conforming embeds. A conforming embed is defined as a non-ACME embeds that has passed visual examination.

b. All non-ACME embeds having shear bars, anchor lugs, anchor plates and combinations, thereof, shall be visually inspected on a sample basis such that each affected release from each supplier is properly represented. If a sufficient sample of any release is not available, all accessible embeds from that release will be inspected. Adequate sample sizes will be defined by Bechtel's Project Engineer.

c. Samples of embeds which contain excessive porosity will be tested. The samples will include embeds which are both visually acceptable and visually unacceptable. The areas of embeds showing excessive porosity shall be tested for ultimate pull-out and shear capacity. Shear bars will be tested for shear, whereas anchor lugs will be tested for pull-out.

d. No additional embeds will be purchased from Acme Steel Engineering Company.

4. Projected completion dates:

The destructive testing program is scheduled for completion by June 26, 1981. The data from the test program will then be used to evaluate the acceptability of similar embeds previously installed and to analyze the safety implications of the problem.

Upon completion of engineering analysis, a final report will be submitted to your office.

Very truly yours,

T. J. Martin
Vice President -
Engineering and Construction

ML:mlr

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

NRC Resident Inspector
Hope Creek Site