

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

830 Power Building

May 18, 1978

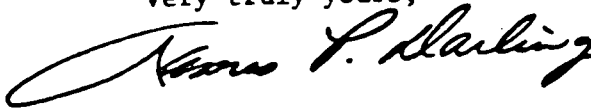
Mr. James P. O'Reilly, Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Region II - Suite 1217  
230 Peachtree Street, NW.  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

This is in response to C. E. Murphy's letter dated April 27, 1978, RII:EOP 50-438/78-8, 50-439/78-8, concerning activities at the Bellefonte Nuclear Plant units 1 and 2, which appeared to have been in violation of NRC regulations. The response to the specific citation is enclosed.

We have reviewed IE Inspection Report 50-438/78-8, 50-439/78-8 and find that it contains no proprietary information.

Very truly yours,

  
for J. E. Gilleland,  
Assistant Manager of Power

Enclosure

cc: Dr. Ernst Volgenau, Director (Enclosure)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2  
INFRACTION 78-08-01  
INADEQUATE DRAWING REQUIREMENTS - CONCRETE PLACEMENT

Infraction

50-438, 439-78-08-01 Inadequate Drawing Requirements - Concrete Placement

10 CFR 50, Appendix B, Criterion III as implemented by PSAR Paragraph 17.1A.3 states in part that measures shall be established to assure that applicable regulatory requirements ... as specified in the license application ... are correctly translated into specification drawings.

Paragraph 3.8.4.2 of the PSAR states that ACI 318-71 "Building Code Requirements for Reinforced Concrete" is applicable for construction of Category I structures. ACI 318-71, Paragraph 3.3.2 states in part that, "The nominal maximum size of the aggregate shall not be larger than ... three fourths of the minimum clear spacing between individual reinforcing bars ...."

Contrary to the above, TVA Drawings 4AW0301-X1-1, Revision 3 and 4AW0323-X1 Revision 1 call for use of 1.5 inch aggregate which is equal to or larger than some of the spacings shown on the drawings.

Assessment of Infraction

TVA has reviewed the details of the subject infraction and upon inspection of the subject drawings has concluded that TVA was in compliance with the provision of ACI 318-71 and, therefore, in compliance with PSAR Paragraph 3.8.4.2. Attached are details on TVA's justification of this position.

Corrective Action Taken and Results Achieved

No corrective action is required.

Steps Taken to Avoid Further Recurrence

No corrective action is required.

Date of Full Compliance

TVA is in compliance at the present time.

Also, we understand that Unresolved Item 78-08-03, identified in the subject inspection Report, has been included in the infraction as an additional example of the infraction. The attachment also provides information which resolves this example of the infraction.

ATTACHMENT

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2  
INFRACTION 78-08-01  
INADEQUATE DRAWING REQUIREMENTS - CONCRETE PLACEMENT

TVA drawing 4AW0301-X1-1 Revision 3 shows the details for the concrete columns used in the Auxiliary Building. The details of the columns show vertical steel in a circular pattern enclosed by spiral steel with a pitch of 2" for the 3'-6" and 4'-0" square columns. The clear distance from the face of the column to the outside of the spiral is 1-1/2". The clear distance between the spiral bars is 1-3/8". The drawing specifies a concrete class with a maximum size aggregate of 1-1/2".

Paragraph 3.3.2 of the ACI 318-71 code states that the nominal maximum size of the aggregate shall not be larger than three-fourths of the minimum clear spacing between individual reinforcing bars or bundles of bars unless, in the judgement of the engineer, workability and methods of consolidation are such that the concrete can be placed without honeycomb or void.

Before approval and release the responsible design engineer reviewed the details for these columns and concluded that concrete with a maximum aggregate size of 1-1/2" could be placed without honeycomb or void. Therefore, the design as issued for construction is in accordance with the governing code ACI 318-71.

TVA drawing 4AW0322-X1-1 specifies a concrete class with a maximum size aggregate of 1-1/2". The companion drawing for reinforcement 4AW0323-X1-1 specifies a clear dimension of 2-1/4" from face of concrete to bottom face steel. TVA drawing series 4AW0830-X2 show details for embedded plates for the concrete detailed on the above drawings. Some of the plates are 1-1/4" thick resulting in a clear space of 1" between the top of the plate and the bottom of the rebar steel.

Paragraph 3.3.2 of ACI 318-71 is quoted in the infraction as being applicable to this situation. Since the embedded plate is a permanent form, the provisions of paragraph 3.3.2 of ACI 318-71 do not apply to this situation. Paragraph 3.3.2 addresses the requirements for maximum size aggregate in relation to slab thickness and minimum spacing between rebars. The clear dimension of 2-1/4" shown on the drawing is to ensure adequate protection for the rebar and does not apply where the embedded plates provide the required protection for the rebar.