



December 20, 1979

Mr. James P. O'Reilly, Director
Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Serial No. 1153
PSE&C/CES:mac:wang

Docket Nos. 50-339
50-404
50-405

Dear Mr. O'Reilly:

On December 18, 1979 a report was made under the provisions of 10CFR50.55(e) concerning a significant breakdown in the Quality Control Program pertaining to verification of the calibration of the Forney Compression Testing Machine.

In accordance with the reporting requirements of 10CFR21, the following information is submitted:

A. Name and address of reporting individual:

Mr. E. A. Baum, Executive Manager
Licensing and Quality Assurance
Virginia Electric and Power Company
P. O. Box 26666
Richmond, Virginia 23261

B. Facility, activity and/or component affected:

North Anna Power Station, Units 2, 3, & 4
Determination of compressive strengths of grout cylinders, grout cubes, concrete core samples and full size concrete cylinders.

C. Name of firm constructing the facility or supplying the component, activity or service:

Stone & Webster Engineering Corporation
P. O. Box 2325
Boston, Massachusetts 02107

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D. Description of defect, deficiency, or failure to comply:

It has been determined that the Forney Compression Testing Machine has not been calibrated in the range from 0 to 25,000 lbs. (lower 10% of the total range of the machine). The machine has been used to determine compressive strengths of grout cylinders (2 in. diameter), grout cubes (2 in. square), concrete core samples (3 in. diameter) and full size concrete cylinders (6 in. diameter). The majority of the grout and concrete core samples broke in the 0 to 25,000 lb. range due to the smaller area to which the compressive force was applied. The concrete cylinders which broke in this range would be the 7-day breaks in the low strength (1,000 psi) backfill concrete. ASTM E4-72 provides a procedure for calibrating in the lower 10% range of the machine.

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ASTM C39-72 and C109-75 specify the diameter of the suspended spherically seated blocks used on the machine for testing the various sized samples. The diameter of the block used for all the testing on this machine is 6 1/2 inches which is larger than that specified in ASTM C39-79 and C109-75 for grout samples.

E. Date of determination of reportability:

December 18, 1979

F. Similar components, activities, or services:

Concrete and grout tests for North Anna Unit 1 were also performed on this machine.

G. Corrective action which has been, is being or will be taken, the individual responsible and the length of time to complete the action:

We are in the process of attempting to have the Forney Compression Testing Machine calibrated in the range of 0 to 25,000 lbs. This calibration should provide the accuracy level at which the machine is operating in this range. Generally, the tested strengths of grouts are very conservative when compared to a required strength of 3,000 psi and it is not anticipated that calibration of the machine will indicate that a problem exists. However, verification of existing data is dependent on calibration of the machine in this range.

Relative to the concern of using a larger head for testing than is specified by ASTM C39-72 and C109-75, preliminary indications are that the use of a larger head would provide conservative results, in that the samples would fail at a lower strength reading due to possible eccentric loading if the sample is not properly centered. Use of the specified head size assures proper centering.

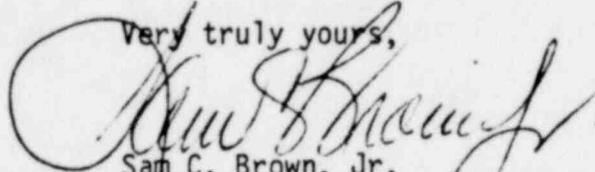
H. Other information:

None

Any information not available at this time will be submitted in a follow-up letter as a 30-day report.

Should you require further information, please contact this office.

Very truly yours,



Sam C. Brown, Jr.
Senior Vice President - Power Station
Engineering and Construction

✓cc: Director, Office of Inspection
and Enforcement (3)

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