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**PUBLIC
SERVICE
INDIANA**

April 22, 1980

S. W. Shields
Vice President - Electric System

Mr. Gaston Fiorelli
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Docket Nos.: STN 50-546
STN 50-547

Construction Permit Nos: CPPR-170
CPPR-171

Dear Mr. Fiorelli:

SUBJECT: Marble Hill Nuclear Generating Station - Units 1 and 2

In accordance with the provisions of Section 2.201 of the NRC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, Public Service Company of Indiana, Inc. (PSI) offers the following information in response to the item of noncompliance identified in Inspection Report No. 50-546/80-06; 50-547/80-06.

Item of Noncompliance (50-546/80-06-02; 50-547/80-06-02)

Marble Hill PSAR, Chapter 17, Section 17.1.2 states that PSI will comply with the AEC Regulatory Guide, Guidance on Quality Assurance Requirements During the Construction Phase of Nuclear Power Plants, Revision 0 dated May 1974 (Green Book - Revision 0). The Green Book, Revision 0 endorses ANSI N45.2.5-1973, Draft 3, Revision 1 - January 1974.

The following requirements are specific areas in which conflicts between specification requirements and PSAR commitments were identified.

1. ANSI N45.2.5-1973, Table B requires that fresh concrete shall be sampled in accordance with ASTM C172. ASTM C172, Section 3.2.3 states that when concrete is sampled from revolving drum truck mixers or agitators, the sample shall be obtained from two or more regularly spaced intervals during discharge of the middle portion of the batch and that those samples shall be composited into one sample for test purposes.

Contrary to the above, Sargent and Lundy Specification Y-2850, Section 411.8Ab. states that, "Samples (concrete) shall be obtained in accordance with ASTM C172, except that when sample is secured by diverting truck chute or pipe discharge into wheelbarrow, no compositing is required; and when central mixed concrete is delivered, sample may be taken from any portion of truck discharge."

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2. ANSI N45.2.5-1973, Table B requires cement to be sampled and tested every 500 bbls (94 tons) in accordance with ASTM C183 for in-process chemical and physical testing as required by ASTM C150.

Contrary to the above, S&L Specification Y-2722, Section 403.3b states that cement sampling and testing, to ascertain conformance with ASTM C150, be performed at a frequency of every 1200 tons.

3. ANSI N45.2.5-1973, Table B endorses ASTM C31, "Making and Curing Concrete Test Specimens in the Field." Section 7.3 of ASTM C31 requires that compressive strength test specimens be removed from the molds at the end of 20 ± 4 hours and stored in a moist condition at 73.4 ± 3 until the moment of test.

Contrary to the above, S&L Specification Y-2850, Section 411.7A states that "Molded cylinders may be left at the point of sampling for a maximum of 72 hours before being moved into moist curing in the laboratory . . ."

4. ANSI N45.2.5-1973 Table B requires that the design age compressive strength cylinders be cast from concrete samples obtained at the frequency of every 100 cubic yards.

Contrary to the above, S&L Specification Y-2722, Table 4-1-5 states that for "Other" Category I work, concrete samples shall be obtained every 150 cubic yards.

Corrective Action Taken and Results Achieved

1. The purpose of subsample compositing is to obtain a representative sample of the properties of a batch of concrete. Compositing subsamples of plastic concrete taken from a particular batch offsets and makes less apparent any variations in air content, slump and temperature within that batch. Therefore, the elimination of compositing places a greater burden on the production facility to maintain uniformity and as such is a conservative sampling practice.

Additionally, the degree of variation of properties within a batch of concrete is determined by separate periodic testing, such as, the sampling for uniformity tests performed in accordance with ASTM C94 as required in Specification Y-2850, Section 411.1.

Since the specification method is more conservative than the ASTM C172 requirement, no change is required in Specification Y-2850.

2. In-process chemical and physical testing as required by ASTM C150, "Standard Specification for Hydraulic Cement" tests are performed by the cement supplier as stipulated in Specification Y-2722, Section 403.1., Section 403.2 of Specification Y-2722 also requires that the cement supplier furnish certification with each shipment (approximately 24 tons) of cement that it meets the applicable chemical and physical requirements of ASTM C150.

This testing is separate from, and supplemental to the in-process testing requirements in ANSI N45.2.5 - 1973, Table B. Additionally, Section 403.3b, of Specification Y-2722 requires testing every 1200 tons and is in accordance with the ASME requirements necessary to meet the testing requirements for cement testing in Section III, Division 2, "Concrete Reactor Vessels and Containments," Subparagraph CC-5221.2.

ANSI N45.2.5 - 74 was changed to require ASTM C150 testing for every 1200 tons using ASTM C183 sampling method.

Based on ASME and later version of ANSI N45.2.5 - requirements, sampling and testing of cement at a frequency of every 1200 tons is adequate.

3. Seventy-two (72) hours time limit is specified in S&L Specification Y-2850, Section 411.7A to facilitate construction practice. As per our past experience 20 ± 4 hours time limit is adequate. Specification Y-2850 will be revised to delete Section 411.7A.
4. The reference documents used to establish required sampling frequencies tabulated in Specification Y-2722 and Y-2850, are published by the American Concrete Institute.

ACI 349, "Code Requirements for Safety-Related Concrete Structures," establishes a compressive strength test frequency of one for every 150 cubic yards of concrete placed for safety-related structures other than the containment. This is the same requirement as in ACI 318, "Building Code Requirements for Reinforced Concrete".

In addition to the ninety-one (91) day cylinders, companion pairs of cylinders are tested at seven (7) days and twenty-eight (28) days for the purpose of monitoring early strength gain.

To comply with ANSI N45.2.5 requirements, S&L Specification Y-2722 will be revised to require compressive strength samples at a frequency of every 100 cubic yards.



Mr. G. Fiorelli

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Corrective Action to Prevent Recurrence

1. Since the specification method is more conservative than the ASTM C172 requirement, PSI believes it meets the intent of its commitment and no further action is required.
2. Based on ANSI N45.2.5-1974, PSI believes it meets the intent of its commitment and no further action is required.
3. PSI will review applicable Specifications against Regulatory Guide 1.94, Revision 1, and endorsed standard ANSI N45.2.5-1974 to identify differences. The Specifications shall then be revised to incorporate any differences which do not meet the intent of Regulatory Guide 1.94, Revision 1, and ANSI N45.2.5-1974.
4. The same as Item 3 above.

Date When Full Compliance will be Achieved

Specification reviews and revisions are planned to be completed with issuance of Engineering Change Notices by June 1, 1980.

Sincerely,

A handwritten signature in cursive script that reads 'S.W. Shields'.

S.W. Shields

CEC/dks

cc: J. J. Harrison
E. R. Schweibinz, P.E.