TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

TIC

October 29, 1979

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

Dear Mr. O'Reilly:

OFFICE OF INSPECTION AND ENFORCEMENT BULLETIN 79-23 - RII:JPO 50-259, -260, -296, -327, -328, -390, -391, -438, -439, -518, -519, -520, -521, -553, -554, -566, -567 - BROWNS FERRY, SEQUOYAH, WATTS BAR, BELLEFONTE, HARTSVILLE, PHIPPS BEND, AND YELLOW CREEK NUCLEAR PLANTS

In response to your September 12, 1979, letter which transmitted OIE Bulletin 79-23, we are enclosing the results of our investigations for Browns Ferry, Sequoyah, Watts Bar, Bellefonte, Hartsville, Phipps Bend, and Yellow Creek Nuclear Plants. If you have any questions regarding this matter, please call Tish Jenkins at FTS 854-2014.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

E. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc (Enclosure):
Mr. Victor Stello, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Office of Inspection and Enforcement
Division of Reactor Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

RESPONSE TO OIE BULLETIN 79-23
POTENTIAL FAILURE OF EMERGENCY DIESEL GENERATOR
FIELD EXCITER TRANSFORMER

Browns Ferry Nuclear Plant (50-259, -260, -296)

We have reviewed the drawings for the emergency diesel generators (EDG's) for a common connection that would allow circulating currents between low-kVA-rated transformers and high-kVA-rated EDG's and have determined that the condition does not exist at Browns Ferry.

A sustained full-load operation test (utilizing emergency diesel generator 3A) is being planned for completion by December 1, 1979. We believe completion of this test on one diesel generator will prove the ability of all eight diesel generator sets to function properly over a 24-hour period at NRC's specified loads. The diesel generator will be loaded for 22 hours at its continuous rating (2,600 kW and 1,950 kVAR) and for two hours at 2,000-hours-per-year rating (2,850 kW and 2,210 kVAR). The diesel generator sets at Browns Ferry do not have a two-hour rating.

Sequoyah Nuclear Plant (50-327, -328)

The diesel generator sets at Sequoyah do not have a grounded neutral on the excitation power transformer that would allow circulating currents. However, a common connection between a low-kVA-rated potential transformer and a high-kVA-rated diesel generator does exist. The potential transformers are used to provide a voltage input to the diesel generator voltage regulator. These potential transformers have a fused, grounded neutral on the high (6,900 V) side. The flow of circulating currents by way of the potential transformer neutral is limited by these fuses.

Each diesel generator at Sequoyah has been subjected to a 24-hour full-load test. Twenty-two hours of this test were run at a load equivalent to the continuous rating of the diesel generator, and two hours of the test were run at a load equivalent to the two-hour rating of the diesel generator. These tests were conducted during the performance of TVA SNP 14E Pre-Operational test. None of the deficiencies listed in NRC-IE Bulletin 79-23 were encountered during the performance of Pre-Operational test 14E.

Watts Bar Nuclear Plant (50-390, -391)

No connections that would allow circulating currents exist between low-kVA-rated transformers and high-kVA-rated diesel generators at Watts Bar Nuclear Plant. Performance shop testing is conducted at the diesel generator vendor before shipment to the site. Sustained full-load testing of the diesel generators is required during properational testing of the facility. Preoperational test procedures are now being written for the Watts Bar diesel generators. Preoperational testing of diesel generators at the site will comply with applicable requirements and regulations.

Bellefonte, Hartsville, Phipps Bend, and Yellow Creek Nuclear Plants (50-438, -439, -518, -519, -520, -521, -553, -554, -566, -567)

Our investigations have revealed that neither a direct connection nor a connection through a common ground exists between the excitation power transformer neutral and the generator neutral on the diesel generator units at the Bellefonte, Hartsville, and Phipps Bend Nuclear Plants. The specifications for the diesel generator units at Yellow Creek Nuclear Plant will be revised to prohibit such connections. Performance shop testing is conducted at the diesel generator vendor before shipment to the site. Sustained full-load testing for the diesel generators is required during preoperational testing of the facility. Preoperational test procedures are now being written for Bellefonte diesel generators. Test procedures for Hartsville, Phipps Bend, and Yellow Creek diesel generators have not been developed at this time. Preoperational testing of diesel generators at all sites will comply with applicable requirements and regulations.