TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

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WBRD-50-390/86-59
WBRD-50-391/86-59

DEC 29 1986

U.S. Nuclear Regulatory Commission
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
01 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - QUESTIONABLE QUALIFICATION OF CONDUIT TO EQUIPMENT CONNECTIONS - WBRD-50-390/86-59, WBRD-50-391/86-59 - INTERIM REPORT

The subject deficiency was initially reported to NRC-Region II Inspector Glenn Walton on November 25, 1986 in accordance with 10 CFR 50.55(e) as SCRs WBN EEB 8663 and WBN EEB 8664. Enclosed is our interim report. We expect to submit our next report on or about October 5, 1987.

If there are any questions, please get in touch with J. A. McDonald at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Domer for

R. Gridley, Director
Nuclear Safety and Licensing

Enclosure
cc (Enclosure):
Mr. James Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
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Mr. G. G. Zech
Director, TVA Projects
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
QUESTIONABLE QUALIFICATION OF CONDUIT TO EQUIPMENT CONNECTIONS
WBRD-50-390/86-59, WBRD-50-391/86-59
SCRs WBN EEB 8663 AND WBN EEB 8664 AND
NCR W-416-P

Description of Deficiency

TVA previously documented a condition adverse to quality (CAQ) on nonconforming condition report (NCR) W-416-P which identifies that some Automatic Switch Company (ASCO) solenoid operated valves (SOVs) were installed at Watts Bar Nuclear Plant (WBN) in a configuration which had not been seismically qualified. An interim report for NCR W-416-P (WBRD-50-390/86-59) was submitted to the NRC on August 11, 1986. Subsequently, significant condition reports (SCRs) WBN EEB 8663 and WBN EEB 8664 were issued. These SCRs serve to broaden the scope of the CAQ identified by NCR W-416-P. They identify that TVA does not have documentation to ensure that Class 1E or 1(L) electrical equipment/instruments in seismic Category 1 structures are seismically qualified when the weight of rigidly attached conduit bodies, fittings, or other conduit hardware is added.

Typically, electrical equipment is qualified with flexible conduit routed to it. The conduit design drawings only indicate the conduit size, type, identifier, and general conduit route. The drawings do not detail all of the field installed hardware nor limiting configurations at the conduit/equipment interface. For example, certain types of equipment/instruments are provided with manufacturer's pigtail cables that require field terminations or splicing to TVA field cable. This usually requires that a conduit body be attached to the equipment housing to accommodate the termination or splice.

The subject CAQ was caused by a failure of TVA's Division of Nuclear Engineering (DNE) to fully consider the seismic aspects of adding field installed conduit hardware which could be required between affected devices and their associated flexible conduit. Consequently, the configuration of the various field installations was not controlled nor documented, and their seismic qualification is indeterminate.

Safety Implications

Without adequate assurance that affected Class 1E and 1(L) electrical equipment is seismically qualified, TVA considers that the equipment could fail during a seismic event. The failure of the affected equipment could adversely affect various safety-related systems. Thus, the subject condition could adversely affect the safety of operations of the plant.

Interim Progress

TVA is still evaluating this deficiency and is proceeding to determine various acceptable conduit installation configurations for use with the affected equipment. DNE's Civil Engineering Branch (CEB) is providing guidelines and design limits to the Electrical Engineering Branch (EEB) designers so that the acceptable configurations can be detailed on design drawings. The drawings will be issued to TVA's Division of Nuclear Construction (DNC) and will provide adequate information to verify the acceptability of present installations, or to rework inadequate installations to an acceptable configuration.

Future design changes will be evaluated by CEB to determine the effects on the seismic qualification of affected equipment. This evaluation will be performed as part of the interface reviews required by DNE's Nuclear Engineering Procedure (NEP) 5.2.

TVA will provide a final report on this item to NRC on or about October 5, 1987.