UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

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September 28, 1978

Docket No. 50-346

MEMORANDUM FOR: E. L. Jordan, Assistant Director for Technical Programs, Office of Inspection and Enforcement

THRU: G. Fiorelli, Chief, Reactor Operations and Nuclear Support Branch

FROM: J. F. Streeter, Chief, Nuclear Support Section 1

SUBJECT: DAVIS-BESSE 1 - OPERATOR ACTION TO PREVENT OVERLOADING EMERGENCY DIESEL GENERATORS DURING A LOCA FOLLOWING A LOSS OF OFFSITE POWER (AITS F30408H2) (AITS F30426H2)

REFERENCE: MEMORANDUM FROM J.F. STREETER TO R. WOODRUFF DATED AUGUST 7, 1978

The referenced memorandum described an emergency diesel generator overload problem which was based on verbal information supplied by the licensee. A followup inspection of this matter was conducted on August 29-31, 1978. It was determined that the potential problem did not exist with overloading and stalling of the emergency diesel generators in the event a LOCA occurred after offsite power had been lost and after a reactor coolant system makeup pump had been placed on the EDG bus. Consequently, the licensee's interim manual action controls and proposed modification to provide an automatic stripping feature are deemed by Region III to be optional on the part of the licensee and will not be pursued by this office.

Region III has surveyed nine other plants and determined that similar problems do not exist at those plants. Therefore, there is no need for a Bulletin or Circular and Region III no longer recommends that other Regions be informed of this potential problem. These recommendations were discussed in telephone conversations between Vince Thomas of your staff and myself immediately after the followup inspection.

The referenced memorandum also stated that there did not appear to be any regulatory bases for requiring an electrical system design which would obviate immediate operator action to avoid overloading the EDG's in the event a LOCA occurred subsequent to a loss of offsite power. After further review we have concluded that regulatory bases do exist. Specifically,

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General Design Criteria 17 and 20 and Regulatory Guide 1.9 taken together indicate that manual action should not be immediately necessary to assure completion of automatic protective actions.

During our followup review of this matter, we discussed with NRR the meaning of the following 18-month STS surveillance requirement for demonstrating the operability of the EDG's:

> Simulating a loss of offsite power in conjunction with a safety injection actuation test signal, and verifying de-energization of the essential busses and load shedding from the essential busses.

Literally taken, this requirement includes all possible sequences whereby a plant could experience a LOCA in combination with a loss of offsite power. The possible sequences are (1) a simultaneous LOCA and loss of offsite power, (2) a LOCA followed by loss of offsite power, and (3) loss of offsite power followed by a LOCA. However, NRR has indicated that the above STS was only intended to cover the simultaneous case. From our knowledge, most if not all plants conduct their tests using simultaneous signals. We do not believe the tests should be conducted in that manner because the simultaneous case does not cover at all plants the most demanding loading combinations the EDG's would see. For example, at Davis-Besse 1 if a loss of offsite power has occurred and the makeup pumps have been placed on the EDG's, a subsequent LOCA would result in ECCS load being sequenced on top of the makeup pump loads. The 18-month EDG tests should be conducted under the most demanding loading combinations that could exist for any sequence of occurrence of a LOCA and loss of offsite power.

We recommend that NRR be requested to review its intended STS testing requirements and determine the need for more conservative EDG testing requirements as described above. This recommendation supersedes the recommendation in the referenced memorandum.

J. D. Smith

for J. F. Streeter, Chief
Nuclear Support Section 1

cc: G. Fiorelli
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CHECK REG GUIDE 1.68 & 1.70

[redacted]

PRE OPERATIONAL TESTING

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