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

CRESWELL

June 9, 1978

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Docket No. 50-346

MEMORANDUM FOR: R. W. Woodruff, Acting Assistant Director for Technical Programs, Division of Reactor Operations Inspection, IE

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

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

SUBJECT: DAVIS-BESSE UNIT 1 COMPLIANCE WITH THE REQUIREMENTS OF GENERAL DESIGN CRITERION 17 (AITS F30385H2)

General design criterion 17 requires, in part, that one of the offsite power circuits supplying a nuclear power station "...be designed to be available within a few seconds following a loss-of-coolent accident..." RIII understands from recent conversations with NRR that this GDC 17 requirement is interpreted as requiring an automatic transfer of station auxiliary power from the main generator to an offsite source in the event of a LOCA since manual switching could not reasonably be expected to be accomplished within a few seconds. The purpose of this memorandum is (1) to point out that Davis-Besse Unit 1 may not comply with this GDC 17 requirement during a loss of load condition, and (2) to recommend that this design matter be forwarded to NRR for review.

The Davis-Besse FSAR contains the following statements related to the automatic fast transfer of station auxiliary power from the main generator to offsite sources following loss of normal (main generator) power:

(a) Appendix 3D, page 3D-15, last paragraph "...In the event the main generator unit is lost, station auxiliaries will be transferred automatically by fast bus transfer schemes to the offsite power..."

(b) Section 8.3.1.1, page 8-6, second paragraph "...The system will have a fast transfer to the reserve power source following a turbine generator or reactor trip, without loss of auxiliary load."

These FSAR statements appear to indicate that the fast bus transfer action is unconditional and, therefore, will occur <u>anytime</u> main generator power is lost.

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In addition, the following FSAR statement indicates that the emergency diesel generators will not be called upon to supply the auxiliary power unless both the main generator and offsite power are lost:

> Appendix 3D, page 3D-15, second paragraph "...Upon loss of the normal and reserve (offsite) power sources, the two 4160 volt essential buses are energized from their respective emergency diesel-generators.

In the event the plant experiences a loss of load (anticipated operational occurrence as described in FSAR Section 15.2.7) due to the main generator 345 KV output breakers opening, the plant is designed to run back to 15% power and maintain station auxiliary loads on the main generator. RIII has determined that if a LOCA occurs when the plant is in this condition the emergency diesel generators would be immediately called upon to supply auxiliary power without the fast transfer circuit attempting to obtain auxiliary power from the preferred (offsite) source. This is due to the design of the fast transfer circuit which requires the 345 KV breakers to have been closed immediately prior to the loss of the main generator. This is the area where the plant may not comply with the GDC requirement.

The licensee's position and basis of fast transfer design is that any event other than generator faults which would cause opening of the generator output breakers would also result in loss of all offsite power sources; therefore, having automatic transfer to this unavailable source would not make any sense. Under generator fault conditions the output breakers open and auxiliary loads are immediately transferred to offsite power. The licensee believes he complies with all requirements of GDC 17.

RIII understands from recent discussions with NRR that Davis-Besse was judged to conform to GDC 17 before OL issuance based on the above mentioned FSAR statements which appear to indicate that (1) the fast transfer scheme is unconditional, and (2) the emergency diesel generators are not called upon to supply auxiliary power unless all other power sources have been lost. Since this is not the case, NRR may not find the design acceptable. RIII recommends this matter be forwarded to NRR for review.

J. F. Streeter, Chief
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