DEC 27 1989

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MEMORANDUM FOR: Jack E. Rosenthal, Chief
Reactor Operations Analysis Branch
Division of Safety Programs, AEOD

THRU: Matthew Chiramal, Chief
Engineering Section
Reactor Operations Analysis Branch
Division of Safety Programs, AEOD

FROM: Subinoy Mazumdar, Electrical Engineer
Engineering Section
Reactor Operations Analysis Branch
Division of Safety Programs, AEOD

SUBJECT: INADEQUATE CAPACITY OF 4160V SWITCHGEAR AT FITZPATRICK - AEOD/T921

Enclosed is a Technical Review report on the use of 4160V switchgear beyond its rating at FitzPatrick Nuclear Plant. During the monthly 1-hour load testing of the Emergency Diesel Generators (EDGs) the licensee operates the EDGs in parallel with the Normal Station Service Transformer (NSST). The parallel connection is made at the 4160V switchgear. A licensee evaluation has established that during such testing the maximum fault current may exceed the 4160V switchgear momentary rating by 27 percent and the interrupting rating by 3.7 percent. The licensee has issued a Justification for Continued Operation (JCO) on the basis that during this testing the probability of occurrence of a fault exceeding the switchgear breaker rating is less than E-6.

On October 2, 1989 in a telephone conference call between the NRC and the licensee, we expressed our concern about the use of the 4160V class 1E switchgear beyond its rating. A failure of a switchgear in its momentary duty or interrupting duty can cause catastrophic explosion and/or fire which can damage part or all of the adjoining equipment. Thus, such a failure in this particular application can cause loss of the EDG under test, a loss of the NSST, and even a failure of the bus transfer from the NSST to the Reserve Station Service Transformer (RSST) thus causing a total loss of all AC power to one train. Furthermore, the licensee has based his JCO on an LER data base search that indentified only five 3-phase and phase-to-phase faults in the medium voltage (between 2.4KV and 13.8KV) system in all nuclear plants in the USA between 1972 and 1989 while our LER data base search indicates occurrence of 57 electrical faults between 1980 and 1989, indicating that the probability approach used in the JCO is questionable.

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As a consequence of our concerns, the licensee has agreed not to operate the plant in any configuration in which the maximum fault current can exceed the breaker rating. The licensee is investigating possible alternatives to resolve the problem. No additional AEOD action is recommended at this time.

/s/

Subinoy Mazumdar, Electrical Engineer
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Enclosure:
As stated

ROAB:DSP:AEOD
SMazumdar:as
11/28/89

ROAB:DSP:AEOD
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11/29/89

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