UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUN 6 1979

MEMORANDUM FOR: R. Reid, Chief, Operating Reactors Branch #4, Division of Operating Reactors

FROM: G. Lainas, Chief, Plant Systems Branch, Division of Operating Reactors

SUBJECT: CRYSTAL RIVER UNIT NO. 3 REQUEST FOR ADDITIONAL INFORMATION FOR DEGRADED GRID VOLTAGE (TAC 10017)

Plant Name: Crystal River Nuclear Power Plant, Unit No. 3
Docket No.: 50-302
Responsible Branch: ORB #4
Project Manager: C. Nelson
Reviewing Branch: Plant Systems Branch
Status: Awaiting Information

In response to technical assistance request TAC 10017 the Plant Systems Branch has reviewed the licensee's submittal of July 25, 1977 and found that additional information is required in order to complete our review.

The attached request for additional information should be forwarded to the licensee as soon as possible.

G. Lainas, Chief
Plant Systems Branch
Division of Operating Reactors

Contact:
S. Rhow, X28077
C. Cleveland, EG&G

Enclosure:
As stated

cc w/enclosure
See next page

7907180905

495 350

NRC PDR

cc w/enclosure:
V. Stello
D. Eisenhut
R. Vollmer
B. Grimes
W. Russell
G. Lainas
C. Nelson
D. Tondi
P. Shemanski
S. Rhow

REQUEST FOR ADDITIONAL INFORMATION
CRYSTAL RIVER UNIT NO. 3
DEGRADED GRID VOLTAGE
(TAC 10017)

Based upon a review of your submittal of July 21, 1977, we conclude that the use of existing undervoltage relaying to protect against a sustained degraded grid condition is not acceptable.

1. In attachment 1 of Mr. Stolz's letter of June 6, 1977 it is stated that a second level of undervoltage protection is required. The setpoints of this second level of undervoltage protection must protect the safety related equipment, including but not limited to, the motors, busses, contactors, and control circuits from a sustained low voltage condition. The undervoltage protection must assure that a voltage below that needed to start and accelerate motors, pull in contactors, or blow control circuit fuses is not present on the bus when this equipment is call upon. Provide your response to the above position.

2. Your proposed setpoint, 2375V for the 4160V bus, is far below the voltage required to start and accelerate safety related motors, close in contactors, and could possibly blow control circuit fuses. A second set of undervoltage relays, in addition to the loss-of-voltage relays, are required to sense the degraded condition. It should be noted that these relays must meet the requirements of IEEE 279-1971 including that they be seismically qualified, Class IE qualified, and documented as such. Provide your response to the above position.

3. The chosen voltage setpoint and time delay associated with second level undervoltage protection must assure that the safety related equipment is not subjected to a voltage below that recommended by the manufacturer for a period of time long enough to cause permanent damage. Provide your response to the above position.

4. Please furnish with your proposal any analysis or calculations to substantiate your choice. This may include voltage profiles of safety busses in the minimum and maximum loaded conditions, motor heat curves, contactor drop-out and pull-in voltages, control circuit fuse characteristics, logic diagrams to show your choice of coincident logic, or schematics of relaying circuits. Refer to Mr. Stolz's letter of June 6, 1977 and attachments for full criteria.

5. Accordingly, your submittal for Technical Specification Change No. 6 is not in compliance with our position as stated in Mr. Stolz's letter, namely the proposed setpoints and limits for undervoltage protection. Provide revised proposed technical specification changes.