

Reference 14



July 5, 1978  
L-78-226

Office of Nuclear Reactor Regulation  
Attention: Mr. Robert W. Reid, Chief  
Operating Reactors Branch #4  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Reid:

Re: Turkey Point Unit Nos. 3 and 4  
Docket Nos. 50-250 and 50-251  
St. Lucie Unit No. 1  
Docket No. 50-335

Your letter of June 7, 1978 requested that we submit our proposed methods and procedures to implement Staff Positions on System Operations. The attachment to this letter is responsive to that request.

As suggested by Position 1 we have defined conditions of system alert and have developed procedures to guide the actions of operating personnel under these pre-defined conditions. These procedures are presently in effect.

As our response to Position 2 indicates, the System Operator may command the System Control Center (SCC) to perform security evaluations of the system to determine if a state of alert is necessary. The SCC is scheduled to be operational in 1979. Data telemetering is also being improved.

Very truly yours,

Robert E. Uhrig  
Vice President

REU:MV:s1  
Attachment

cc: Mr. A. Schwencer, Chief, Operating Reactors Branch #1  
Harold F. Reis, Esquire

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RESPONSE BY FLORIDA POWER & LIGHT COMPANY  
TO NRC STAFF POSITIONS  
RELATIVE TO SYSTEM DISTURBANCE  
MAY 16, 1977

Staff Position No. 1

Under certain well-defined and predefined conditions, a power system shall be declared to be in some class of alert. For each such class there shall be well defined procedures to mandate or to guide the actions of the operating personnel. Some of the things which might place a system in an alert condition are: planned outage of significant components, extended severe weather spells which strain capacity over an extended area, impending storms, fires, floods, sudden loss of components, or sudden misbehaviour of state variables for no known reason. The listing and the definition of the alert status and the prescription of required remedies during any alert condition should be provided by the licensee.

Response:

FPL has in effect emergency operating procedures that define states of alert and provide recommended System Operator action when a state of alert is entered.

The procedures identify states of alert as follows:

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|------------------|---|
| Condition Green  | Normal condition. Reserve generation capacity available to back up loss of largest unit. No transmission limitations.   |
| Condition Blue   | Alarm condition. Reserve generation capacity not available to back up loss of largest unit, or transmission limitation may limit use of reserve, or imminent extreme loads expected due to weather, fire, explosion, etc. |
| Condition Yellow | Critical condition. Operating reserve nearly exhausted. Not able to maintain spinning reserve. Imminent possibility of load curtailment or voltage reduction.   |
| Condition Red    | Interruption condition. Customer interruption in effect. Emergency load control procedures in progress. Blackout restoration in progress.   |

For each state of alert, the following general actions will be taken:

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|-----------------|--|
| Condition Green | Normal economic dispatch until a transmission limit is reached. Maintain area interchange limits using area generation, as required. Maintain spinning reserve requirements. |
|-----------------|--|



Condition Blue

Adjust spinning reserve in generation deficient area as area interchange limitation is approached. Purchase emergency interchange power in generation deficient area. Allow area imported power to exceed limits by assigning up to 200 MW to step zero<sup>1</sup> underfrequency tripping (59.7 Hz) on a megawatt for megawatt basis. Run all available generating units without exceeding continuous capability ratings. Notify affected plants to prepare for peak capability.

Notify Assistant Manager and Manager of System Operation. Implement normal staffing in Division Dispatch Offices and System Control Center. Send teletype messages to affected Divisions and Plants stating concern. Notify Director - Power Supply. Curtail plant and/or transmission maintenance work as appropriate.

Condition Yellow

Assign additional firm load to step zero underfrequency tripping as additional import is made into generation deficient area up to spinning reserve allocation. Load Gas Turbines to peak rating followed by steam units.

Implement emergency manning of Divisions and System Control Center. Notify Assistant Manager, Manager, and Director - Power Supply of condition. Send teletype messages to affected Divisions and Plants stating condition. Man non-supervisory controlled substation as required. Call extra crews as required. Man Emergency Communications Center at minimum level.

Condition Red

Interruption of service in effect. Augment Division Dispatch Office and System Control Center manpower as required. Man Emergency Communications Center to full level. Implement emergency communications procedures. Reduce voltage. Curtail load. Implement restoration procedures.

Staff Position No. 2

Prior to the planned outage of any major component, a security evaluation of the resulting configuration of bounding magnitude shall be performed. When the security evaluation is performed by steady state (load flow) and transient stability analyses, both single and double contingencies shall be considered in the computations to determine the state of alertness appropriate to the expected system configuration (Position No. 1).

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<sup>1</sup> Load assigned to step zero will be shed should system frequency fall to 59.7 Hz. This action has the same effect as increasing spinning reserve generation.

In addition, we request that the licensee describe steps that have been or will be taken to:

- a. Improve telemetering equipment that transmits current information on the state of all major transmission and generation components to the Control Center; and
- b. Provide and maintain current daily reports of equipment availability, disabling of major relays, etc., in the Control Center.

Response:

The System Operator will have the ability to command the System Control Center (SCC) to perform a security evaluation under anticipated conditions to determine if any limits would be violated. In addition, the SCC will perform a security evaluation on a real time basis of the existing state of the system on a predetermined schedule. Limits will have been established by bounding steady state and transient stability analyses. Such analyses will consider both single and double contingencies. Command evaluations will be performed prior to planned removal or curtailment of a major component. Transmission lines and associated switching stations will be evaluated periodically for their effect on system security. Those lines and switching stations that are found to have a significant effect on security and generating units of nominal 400 MW capability and higher will be considered "major components".

When potential violations of established limits are identified and no acceptable alternative operating configuration is practical, an appropriate state of alert will be declared and predetermined compensating actions will be taken as outlined in our response to Staff Position No. 1.

- a. New telemetering equipment is being installed at operating plants, bulk power substations and switching stations. Real and reactive power, current and voltage information will be telemetered to the SCC continuously. The status of bulk power transmission switching equipment will also be telemetered to the SCC and displayed on a dynamic diagram board.
- b. The telemetered information discussed in 2 a. plus the existing records on clearance requests will meet the Reg. position 2 b.

The SCC is expected to become operational during 1979. Telemetered information and evaluation capability will become available to the System Operator as areas are phased into the SCC during the year.

