

AUG 25 1983

DMB-016  
RHernan  
RIngram  
Gray File+4

Docket No. 50-302

Mr. Walter S. Wilgus  
Vice President, Nuclear Operations  
Florida Power Corporation  
ATTN: Manager, Nuclear Licensing  
& Fuel Management  
P. O. Box 14042; M.A.C. H-2  
St. Petersburg, Florida 33733

DISTRIBUTION  
Docket File  
NRC PDR  
L PDR  
ORB#4 Rdg  
DEisenhut  
OELD  
CMiles  
LHarmon  
ACRS-10  
TBarnhart-4  
EJordan  
JTaylor  
WJones  
DBrinkman  
RDiggs  
EBlackwood  
Hornstein

Dear Mr. Wilgus:

The Commission has issued the enclosed Amendment No. 66 to Facility Operating License No. DPR-72 for the Crystal River Unit No. 3 Nuclear Generating Plant (CR-3). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 14, 1983, as supplemented on January 20, July 6 and July 14, 1983.

This amendment changes the frequency of manual initiation testing of Engineered Safeguards Features (ESF) circuitry from monthly to every 18 months during shutdown to be consistent with the B&W Standard TSs. It also provides relief for monthly automatic actuation logic circuitry on certain portions of the ESF systems where testing could cause undesirable transients on plant components.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's next Monthly Federal Register Notice.

Sincerely,

ORIGINAL SIGNED BY  
JOHN F. STOLZ

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosures:

- 1. Amendment No. 66
- 2. Safety Evaluation

cc w/enclosures:  
See next page

8309120043 830825  
PDR ADDCK 05000302  
PDR

OFFICE	ORB#4:DL	ORB#4:DL	C-ORB#4:DL	AD:OR-DL	OELD	
SURNAME	RIngram	RHernan;cf	JStolz	Gla...as	M. KARMAN	
DATE	8/22/83	8/22/83	8/22/83	8/22/83	8/22/83	

Crystal River Unit No. 3  
Florida Power Corporation

50-302

cc w/enclosure(s):  
Mr. S. A. Brandimore  
Florida Power Corporation  
Vice President and General Counsel  
P. O. Box 14042  
St. Petersburg, Florida 33733

Mr. Wilbur Langely, Chairman  
Board of County Commissioners  
Citrus County  
Iverness, Florida 36250

Regional Radiation Representative  
EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30308

Mr. Robert B. Borsum  
Babcock & Wilcox  
Nuclear Power Generation Division  
Suite 220, 7910 Woodmont Avenue  
Bethesda, Maryland 20814

Mr. Tom Stetka, Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route #3, Box 717  
Crystal River, Florida 32629

Nuclear Plant Manager  
Florida Power Corporation  
P. O. Box 219  
Crystal River, Florida 32629

Bureau of Intergovernmental Relations  
660 Apalachee Parkway  
Tallahassee, Florida 32304

Ulray Clark, Administrator  
Radiological Health Services  
Department of Health and  
Rehabilitative Services  
1323 Winewood Blvd.  
Tallahassee, Florida 32301

Administrator  
Department of Environmental Regulation  
Power Plant Siting Section  
State of Florida  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Attorney General  
Department of Legal Affairs  
The Capitol  
Tallahassee, Florida 32304

Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission, Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303



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

FLORIDA POWER CORPORATION

CITY OF ALACHUA

CITY OF BUSHNELL

CITY OF GAINESVILLE

CITY OF KISSIMMEE

CITY OF LEESBURG

CITY OF NEW SMYRNA BEACH AND UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH

CITY OF OCALA

ORLANDO UTILITIES COMMISSION AND CITY OF ORLANDO

SEBRING UTILITIES COMMISSION

SEMINOLE ELECTRIC COOPERATIVE, INC.

CITY OF TALLAHASSEE

DOCKET NO. 50-302

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 66  
License No. DPR-72

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Florida Power Corporation, et al (the licensees) dated January 14, 1983, and as supplemented on January 20, July 6, and July 14, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

B309120046 B30825  
PDR ADDCK 05000302  
P PDR

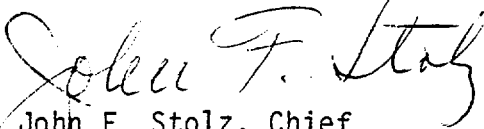
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-72 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 66, are hereby incorporated in the license. Florida Power Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 25, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 66

FACILITY OPERATING LICENSE NO. DPR-72

DOCKET NO. 50-302

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Pages

3/4 3-18

3/4 3-19

3/4 3-20

3/4 3-21

B3/4 3-1

TABLE 3.3-5 (Cont'd)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS*</u>
7. <u>Containment Radioactivity-High</u>	
a. Reactor Building Purge Isolation	15 *
8. <u>Main Feedwater Pump Turbines A and B Control Oil Low</u>	
a. Emergency Feedwater Actuation	Not Applicable
9. <u>OTSG A and B Level Low-Low</u>	
a. Emergency Feedwater Actuation	Not Applicable

---

\*Diesel Generator starting and sequence loading delays included.  
Response time limit includes movement of valves and attainment of  
pump or blower discharge pressure.

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. SAFETY INJECTION				
a. High Pressure Injection				
1. Manual Initiation	N/A	N/A	R	5 or 6
2. Reactor Building Pressure High	S	R	M(2)	1, 2, 3
3. RCS Pressure Low	S	R	M	1, 2, 3
4. RCS Pressure Low-Low	S	R	M	1, 2, 3
5. Automatic Actuation Logic	N/A	N/A	M(1) (3) (5)	1, 2, 3, 4
b. Low Pressure Injection				
1. Manual Initiation	N/A	N/A	R	5 or 6
2. Reactor Building Pressure High	S	R	M(2)	1, 2, 3
3. RCS Pressure Low-Low	S	R	M	1, 2, 3
4. Automatic Actuation Logic	N/A	N/A	M(1) (3)	1, 2, 3, 4
2. REACTOR BUILDING COOLING				
a. Manual Initiation	N/A	N/A	R	5 or 6
b. Reactor Building Pressure High	S	R	M(2)	1, 2, 3
c. Automatic Actuation Logic	N/A	N/A	M(1) (3) (5)	1, 2, 3, 4

TABLE 4.3-2 (Cont'd)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEMS INSTRUMENTATION SURVEILLANCE REQUIREMENTS

CRYSTAL RIVER - UNIT 3

3/4 3-19

Amendment No. 77, 78, 87, 86

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
3. REACTOR BLDG. SPRAY				
a. Reactor Bldg. Pressure High-High coincident with HPI Signal	S	R	M(4)	1, 2, 3
b. Automatic Actuation Logic	N/A	N/A	M(1)(3)(5)	1, 2, 3
4. OTHER SAFETY SYSTEMS				
a. Reactor Bldg. Purge Exhaust Duct Isolation on High Radioactivity				
1. Gaseous	S	Q	M	All Modes
b. Steam Line Rupture Matrix				
1. Low SG Pressure	N/A	R	N/A	1, 2, 3
2. Automatic Actuation Logic	N/A	N/A	M	1, 2, 3
c. Emergency Feedwater				
1. Main Feedwater Pump Turbines A and B Control Oil Low	S	R	N/A	1, 2, 3
2. OTSG A and B Level Low-Low	S	R	N/A	1, 2, 3, 4



TABLE 4.3-2 (Cont'd)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
5. REACTOR BUILDING ISOLATION				
a. Manual Initiation	N/A	N/A	R	5 or 6
b. Reactor Building Pressure High	S	R	M(2)	1, 2, 3
c. Automatic Actuation Logic	N/A	N/A	M(1)(3)(5)	1, 2, 3, 4
d. Manual Initiation (HPI Isolation)	N/A	N/A	R	5 or 6
e. RCS Pressure Low (HPI Isolation)	S	R	M	1, 2, 3
f. Automatic Actuation Logic (HPI Isolation)	N/A	N/A	M(1)(3)(5)	1, 2, 3, 4

TABLE 4.3-2 (Continued)

TABLE NOTATION

- (1) The CHANNEL FUNCTIONAL TEST of the Automatic Actuation Logic need only demonstrate one combination of the three two-out-of-three logic combinations that are operable provided that a different combination is tested at each test interval, such that all three combinations will be confirmed to be operable by the time the third successive test is completed.
- (2) The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying pressure to the appropriate side of the transmitter.
- (3) Each logic channel shall be tested at least once every other 31-day period (applies only to Test Groups HPI-3, LPI-1 and LPI-2 for the duration of Fuel Cycle 5 - see (5) below).
- (4) Reactor building pressure High-High signal only.
- (5) Monthly CHANNEL FUNCTIONAL TEST of the Automatic Actuation Logic circuitry has been waived for all Test Groups with the exception of Test Groups HPI-3, LPI-1 and LPI-2 for the duration of Fuel Cycle 5 for Crystal River Unit 3.

## INSTRUMENTATION

### 3/4.3.3 MONITORING INSTRUMENTATION

#### RADIATION MONITORING INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

#### ACTION:

- a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 2 hours or declare the channel inoperable.
- b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3.

### 3/4.3 INSTRUMENTATION

#### BASES

#### 3/4.3.1 and 3/4.3.2 REACTOR PROTECTION SYSTEM (RPS) AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

The OPERABILITY of the RPS and ESFAS instrumentation systems ensure that 1) the associated ESFAS action and/or RPS trip will be initiated when the parameter monitored by each channel or combination thereof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for RPS and ESFAS purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. The ESFAS Functional Unit CHANNEL FUNCTIONAL TESTS shall be performed in accordance with Regulatory Guide 1.22 (Revision 0, 1972).

The measurement of response time at the specified frequencies provides assurance that the RPS and ESFAS action function associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such test demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

### 3/4.3 INSTRUMENTATION

#### BASES

---

#### 3/4.3.3 MONITORING INSTRUMENTATION

##### 3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

##### 3/4.3.3.2 INCORE DETECTORS

The OPERABILITY of the incore detectors ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. See Bases Figures 3-1 and 3-2 for examples of acceptable minimum incore detector arrangements.

##### 3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event so that the response of those features important to safety may be evaluated. This capability is required to permit comparison of the measured response to that used in the design basis for the facility. This instrumentation is consistent with the recommendations of Safety Guide 12 "Instrumentation for Earthquakes", March 1971.

##### 3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public. This instrumentation is consistent with the recommendations of Regulatory Guide 1.23 "Onsite Meteorological Programs", February 1972.

##### 3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 66 TO FACILITY OPERATING LICENSE NO. DPR-72

FLORIDA POWER CORPORATION, ET AL

CRYSTAL RIVER UNIT NO. 3 NUCLEAR GENERATING PLANT

DOCKET NO. 50-302

INTRODUCTION

Florida Power Corporation (the licensee), in a letter dated January 14, 1983, requested a change to the Crystal River Unit 3 Technical Specification requirement to perform monthly functional testing on manual and automatic initiation logic circuitry associated with the engineered safety features. The change would increase the time interval between testing for certain components which can result in undesirable effects on the plant if tested during power operation. The staff's evaluation of this request involved a number of requests for additional information from the licensee and two meetings (January 17 and July 13, 1983) with the licensee. The results of our evaluation are included herein.

BACKGROUND

In Amendment 61 to the operating license for Crystal River Unit 3, the technical specification requirements to conduct monthly channel functional tests of manual initiation and automatic actuation logic for the engineered safety feature actuation systems were waived until refueling IV scheduled for March 1983. This action was taken in response to the licensee's change request dated January 14, 1983, wherein it was noted that although the engineered safety feature systems were designed to be tested during power operation, the technical specification requirements to conduct such testing had not been incorporated into the plant surveillance procedures for some safety functions. Further, it was noted that where such testing had been included in surveillance procedures, several adverse consequences had occurred as a result of testing and additional potential adverse consequences had been identified which could result from such testing. Since the licensee concluded that these adverse consequences posed a significant threat to plant reliability and may pose safety concerns of varying severity, he was compelled to cease such testing during power operation to maintain an adequate level of plant reliability and safety.

The licensee acknowledged that heretofore they had not tested the engineered safety feature actuation systems in the manner implied in the Final Safety Analysis Report (FSAR) and as required by plant technical specifications. Further, recognizing the need to maintain an adequate test program to assure reliable operation, the licensee proposed the following program:

- 1) Defer all such testing until Refuel IV.
- 2) Develop appropriate surveillance tests before restart from Refuel IV to allow safe and reliable testing during power operating in Cycle V and thereafter for those test groups which can be so tested without modifications.

8309120049 830825  
PDR ADDCK 05000302  
PDR

- 3). Perform a review to determine what actions are necessary to allow optimum testing on a schedule to support performance of any needed plant modifications in Refuel V.

For item 1) above, the licensee proposed changes to the plant technical specifications that would change the frequency of channel functional tests for manual initiation from monthly to every refueling. Also, the channel functional tests for automatic actuation logic would be annotated to indicate that testing need not include operation of actuated equipment where such operation could affect the safety or operability of the plant or where equipment is normally in its post accident configuration.

The NRC staff concluded that the licensee had provided a sufficient basis for not testing in the interim period for which relief was requested based on the demonstrated operability of actuated equipment covered by the inservice testing program, the relatively low probability of relay contact and circuit continuity failures which would be revealed by the deferred tests, and the potential for adverse consequences that could pose a threat to plant safety due to testing during power operation. However, in the absence of a more thorough review of the testing features incorporated in the system design, the NRC staff with the concurrence of the licensee waived the requirements for testing until Refuel IV in lieu of incorporating the language of the technical specifications as proposed by the licensee. This action was taken since the changes proposed by the licensee did not limit the period in which relief would be granted to those few months preceding Refuel IV.

#### EVALUATION

The design of the Crystal River engineered safety feature actuation system consists of three sensor channels and two trains of logic channels. Each sensor channel deenergizes a separate relay in each logic channel on a channel trip. Contacts of the logic channel relays associated with each sensor channel are used to form a two out of three logic matrix to perform each protective action, such as start a pump or change the position of a valve. The channel functional tests performed on each sensor channel trips all of its associated relays in each train of the logic channels. These tests confirm the operation of the logic channel relays by the use of status lights which are in series with a contact of each logic channel relay. The logic channel relays are divided into three groups for each protective function. Test switches in series with the logic channel relays permit testing of each two out of three combination of logic channel relays within each group. The channel functional test of the logic channels therefore confirms the operability of the two out of three logic for all safety actions associated with each group. However, since the two out of three matrix of logic channel relay contacts are wired directly to the actuated components, the testing of each group requires that all actuated components in the group change state to verify one combination of the logic.

There are two major considerations that impact the channel functional testing of the actuation logic in this design. The first is that in order to confirm the operability of the logic, each actuated component must be cycled from the nonsafety state to the safety state three times in order to confirm each combination of the two out of three logic matrix relay contacts. The second consideration is that all components associated with each group must undergo a change in state in order to perform the channel function test of the actuation logic. These considerations will be addressed as they relate to the request for relief from the current testing requirements.

As a basis to support the requested relief from the requirements for channel functional tests of the automatic actuation logic, the licensee has referenced the guidance provided in Regulatory Guide 1.22, "Periodic Testing of Protection System Actuation Functions". Specifically, Regulatory Position 4 excludes testing of actuated equipment during reactor operation where such action would adversely affect safety or operability of the plant, the probability of protection system failure is acceptably low without such testing, and it can be routinely tested when the reactor is shut down. While the NRC staff concludes that one or more components associated with each test group satisfies this criteria, many components do not. However, as noted above, the design provisions for logic testing allow either an all or nothing approach to be taken for channel functional tests for each test group of a protective function. The NRC staff did not accept the licensee's proposed statement for the technical specification modifications since it would permit exclusion of all components in a test group when any component associated with that group was judged to have an adverse affect on operation. It was concluded that the proposed change went beyond the intent of the regulatory position with regard to exceptions to functional testing requirements due to the specific nature of the automatic actuation logic test capabilities.

In the evaluation of the requested relief from the current technical specification requirements, consideration was given to a number of factors that have a bearing on the safety significance of this action. First, it is noted that channel functional tests which are performed on a monthly basis for sensor channels do confirm the operability of a majority of functional aspects of the actuation logic matrix relays. This includes the operation of the relay coil and a change in state of one of the relay contacts. The only aspect of logic matrix relay that is not checked is the change in state of the relay contacts that form the matrix of the two out of three logic and the continuity of the wiring from the relay contacts to the actuated devices. Therefore, the NRC staff requested that the licensee indicate what experience they had on failures of these types from tests that had been conducted since the plant went into commercial operation in 1977. Based on a review of the testing and maintenance history of these systems, no failures were identified to have occurred in the logic matrix relay contacts or associated wiring continuity. Therefore, it may be concluded those failures as would be revealed by channel function tests of the automatic actuation logic have a low probability of occurrence.

Another factor bearing on this matter is the testing which has been performed in order to verify that these systems are operable. The licensee had noted that channel functional tests of the automatic actuation logic would be conducted when the unit was shutdown for Refuel IV. As noted above, the channel functions test of the two out of three matrix relay logic requires that the actuated equipment change state three times in order to confirm the operability of each logic combination. In discussing this facet of the testing, the licensee noted that the plant surveillance procedures only required that one combination of the two out of three logic be tested at any one time. During subsequent tests, other combinations are used such that only on the third time that the procedure was used would all combinations of the logic have been tested. Further, it was learned that this approach was also used for those channel functional tests which had been previously conducted on a monthly basis in conformance to the technical specification requirements. In regard to this matter, the NRC staff concludes that this is another area in which the licensee has incorrectly interpreted and applied the surveillance requirements of the plant



technical specifications. Specifically, it is noted in the bases of the plant technical specifications that the operability of these systems ensure that 1) the specified coincidence is maintained and 2) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance. Further, the channel functional tests are defined as inclusive of those actions required to demonstrate that the automatic actuation logic is operable. Based on the licensee's approach used to test these systems, it is concluded that many of these systems have only been tested once since the plant went into commercial operation. This includes one logic combination test during each of the first three refueling outages. Therefore, noting this possibility, the NRC staff requested that the licensee confirm that the operability of these systems would be demonstrated by testing all logic combinations prior to resumption of power operation following Refuel IV. In response, the licensee has noted that the surveillance procedures were modified to insure that these systems are operable by tests of all logic combinations and that these tests will be completed prior to subsequent power operation. Further, these tests will be performed during each subsequent refueling outage as well as during each cold shutdown in excess of two weeks as a compensatory measure while operating under any interim relief.

In the licensee's initial request for relief, their proposed program for permanent resolution of this matter indicated that before restart from Refuel IV, appropriate surveillance procedures would be developed to perform channel functional tests of the automatic actuation logic for those test groups of protective functions that did not include components which could adversely affect safety or operability of the plant. This action has been completed and includes all test groups of low pressure injection and test group 3 of high pressure injection. With regard to these tests, the licensee's past practice of testing only one logic combination has been considered. It is noted that the low pressure injection function only involves the repositioning of four valves and that test group 3 of high pressure injection involves the starting of 13 pumps and fans. Further, the licensee has noted that all pumps are started monthly as well as two of the five fans associated with test group 3 of the high pressure injection. Therefore, we conclude that the monthly testing of these actuated components reduces the potential for undetected failures and that the additional assurance provided by testing all logic combinations to demonstrate the operability of the automatic actuation logic as well as the increased operating cycles imposed upon the actuated equipment is not warranted. Therefore, the technical specifications have been revised to require that only one combination of logic matrix relay contacts be verified operable by the monthly channel functional tests.

The licensee requested that the surveillance interval for the channel functional tests of manual initiation of safety functions be changed from monthly to each refueling outage. The manual initiation of safety actions is performed by a separate push button switch for each safety function which energizes a set of auxiliary relays. Contacts of these auxiliary relays are used to duplicate the action of the automatic actuation logic matrix relay contacts to provide the required safety action. In that the proposed change is consistent with standard plant technical specification requirements for surveillance of manually initiated safety actions, we find this acceptable. Further, testing of the manual initiation will have been completed prior to entry into Mode 4 following Refuel IV. Recognizing that manual initiation of safety functions provides an additional means to assure that safety actions are initiated, the licensee has noted that

operator training and procedures require the operator to follow automatic actuation of safety functions with manual actuation once it has been verified that the automatic actuation was not spurious. We conclude that this further reduces the safety impact on those safety functions for which relief from the monthly testing requirements has been requested.

Finally the licensee has noted that they have committed to pursuing the detailed engineering study and related redesign efforts to bring about a permanent resolution of this matter. To that end they have committed to provide a detailed schedule including the opportunity for NRC pre-implementation review by no later than October 1983.

Therefore, with consideration of the actions that have been taken to demonstrate that the automatic actuation logic is fully operable prior to subsequent operations from Refuel IV, the relative low probability for failures in those portions of the logic for which relief from the technical specification requirements for monthly channel functional tests has been requested, and the licensee's commitment to a plan of action for permanent resolution, we find that the requested relief is acceptable throughout the fuel cycle V on an interim basis. The specific format of this relief as reflected in the change to the technical specifications was discussed with and accepted by the licensee.

#### ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

#### CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: August 25, 1983

Principal Contributors: T. Dunning