August 12, 1999

Mr. John Paul Cowan
Vice President, Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Licensing (NA1B)
Crystal River Energy Complex
15760 W. Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 - ISSUANCE OF AMENDMENT REGARDING REVISED PRESSURE/TEMPERATURE LIMITS REPORT AND LOW TEMPERATURE OVERPRESSURE PROTECTION LIMITS (TAC NO. MA4146)

Dear Mr. Cowan:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 183 to Facility Operating License No. DPR-72 for Crystal River Unit 3 (CR-3). This amendment is in response to a Florida Power Company (FPC) request dated October 30, 1998, as supplemented on December 31, 1998 and May 12, 1999. The FPC submittal requested approval for the use of Topical Report BAW-2421 for fluence determination and revised low temperature overpressure protection limits. Changes to the CR-3 Pressure/Temperature Limits Report to reflect operation to 32 Effective Full Power Years were included in the submittal.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

L. Wiens, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosures: 1. Amendment No. 183 to DPR-72
2. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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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
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. 183
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 October 30, 1998, as supplemented on December 31, 1998 and May 12, 1999, 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.

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. 183, 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 its date of issuance and shall be implemented prior to commencing cycle 12 operation.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow for

Sheri R. Peterson, Chief, Section 2
Project Directorate II
Division of Project Licensing Management
Office of Nuclear Reactor Regulation

Date of Issuance: August 12, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 183

TO FACILITY OPERATING LICENSE NO. DPR-72

DOCKET NO. 50-302

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Page	Insert Page
3.4-21	3.4-21
3.4-21A	3.4-21A
3.4-21B	3.4-21B
3.4-21C	3.4-21C
3.4-21D	3.4-21D
3.4-21E	----------
5.0-23	5.0-23
5.0-23A	5.0-23A
B 3.4-11	B 3.4-11
B 3.4-16	B 3.4-16
B 3.4-52B	B 3.4-52B
B 3.4-52C	B 3.4-52C
B 3.4-52D	B 3.4-52D
B 3.4-52E	B 3.4-52E
B 3.4-52F	B 3.4-52F
B 3.4-52G	B 3.4-52G
B 3.4-52H	B 3.4-52H
B 3.4-52I	B 3.4-52I
B 3.4-52J	B 3.4-52J
B 3.4-52K	B 3.4-52K
B 3.4-52L	B 3.4-52L

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. More than one makeup pump capable of injecting into the RCS.	A.1	--------NOTE----------- Two makeup pumps may be capable of injecting into the RCS during pump swap operation for ≤ 15 minutes. -----------------------	
		Initiate action to verify only one makeup pump is capable of injecting into the RCS.	Immediately
B. HPI capable of actuation.	B.1	Initiate action to verify HPI deactivated.	Immediately
C. A CFT not isolated when CFT pressure is greater than or equal to the maximum RCS pressure for existing temperature allowed in the PTLR.	C.1	Isolate affected CFT.	1 hour
D. Required Action C.1 not met within the required Completion Time.	D.1	Increase RCS temperature to > 208°F.	12 hours
	<u>OR</u>		
	D.2	Depressurize affected CFT to < 454 psig.	12 hours
E. Pressurizer level > 155 inches.	E.1	Restore pressurizer level to ≤ 155 inches.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action E.1 not met within the required Completion Time.	F.1 Close and maintain closed the makeup control valve and its associated isolation valve. <u>AND</u> F.2 Stop RCS heatup.	12 hours 12 hours
G. PORV inoperable.	G.1 Restore PORV to OPERABLE status.	1 hour
H. Required Action G.1 not met within the required Completion Time.	H.1 Reduce makeup tank level to ≤ 88 inches. <u>AND</u> H.2 Deactivate low low makeup tank level interlock to the borated water storage tank suction valves.	12 hours 12 hours
I. Pressurizer level > 155 inches. <u>AND</u> PORV inoperable. <u>OR</u> LTOP System inoperable for any reason other than Condition A through Condition H.	I.1 Restore LTOP System to OPERABLE status. <u>OR</u> I.2 Depressurize RCS and establish RCS vent of ≥ 0.75 square inch.	1 hour 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Verify a maximum of one makeup pump is capable of injecting into the RCS.	12 hours
SR 3.4.11.2	Verify HPI is deactivated.	12 hours
SR 3.4.11.3	--------------NOTE-------------- Only required to be performed when CFT isolation is required ------------------------------- Verify each CFT isolation valve is closed and deactivated.	12 hours
SR 3.4.11.4	--------------NOTE-------------- Not required to be performed when complying with LCO 3.4.11.b ------------------------------- Verify pressurizer level is ≤ 155 inches.	30 minutes during RCS heatup and cooldown AND 12 hours
SR 3.4.11.5	--------------NOTE-------------- Not required to be performed when complying with LCO 3.4.11.b ------------------------------- Verify PORV block valve is open.	12 hours
SR 3.4.11.6	--------------NOTE-------------- Only required when complying with LCO 3.4.11.b. ------------------------------- Verify RCS vent ≥ 0.75 square inch is open.	12 hours for unlocked vent opening(s) AND 31 days for locked vent opening(s)

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.11 An LTOP System shall be OPERABLE with a maximum of one makeup pump capable of injecting into the RCS, high pressure injection (HPI) deactivated, the core flood tanks (CFTs) isolated and:

a. Pressurizer level ≤ 155 inches and an OPERABLE power operated relief valve (PORV) with a lift setpoint of ≤ 454 psig; or

b. The RCS depressurized and an RCS vent of ≥ 0.75 square inch.

APPLICABILITY: MODE 4 when RCS temperature is ≤ 264°F,
MODE 5,
MODE 6 when the reactor vessel head is not completely detensioned.

---NOTE---
CFT isolation is only required when CFT pressure is greater than or equal to the maximum RCS pressure for the existing RCS temperature allowed by the pressure and temperature limit curves provided in the PTLR.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.11.7	Perform CHANNEL FUNCTIONAL TEST for PORV.	Within 12 hours before or after decreasing RCS temperature to ≤ 264°F AND 31 days thereafter
SR 3.4.11.8	Perform CHANNEL CALIBRATION for PORV.	24 months
SR 3.4.11.9	--------------NOTE---------------- Not required to be performed when complying with LCO 3.4.11.b --------------------------------- Verify PORV is selected to the low range setpoint.	12 hours

5.6 Procedures, Programs and Manuals

5.6.2.18 COLR (continued)

LCO 3.2.3 AXIAL POWER IMBALANCE Operating Limits
LCO 3.2.4 QUADRANT POWER TILT
LCO 3.2.5 Power Peaking Factors
LCO 3.3.1 Reactor Protection System (RPS) Instrumentation
LCO 3.9.1 Boron Concentration

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC:

BAW-10179P-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses" (the approved revision at the time the reload analyses are performed) and License Amendment 144, SER dated June 25, 1992. The approved revision number for BAW-10179P-A shall be identified in the COLR.

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.2.19 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

a. Other Applicable ITS:

3.4.3 RCS P/T Limits
3.4.11 Low Temperature Overpressure Protection

b. RCS pressure and temperature limits, including heatup and cooldown rates, criticality, and hydrostatic and leak test limits, shall be established and documented in the PTLR. The analytical methods used to determine the pressure and temperature limits including the heatup and cooldown rates shall be those previously reviewed and approved by the NRC in BAW-10046A, Rev. 2, "Methods of Compliance With Fracture Toughness and Operational Requirements of 10 CFR 50, Appendix G,"June 1986. The analytical method used to determine vessel fluence shall be those reviewed by the NRC and documented in BAW-2241P, May 1997. the analytical method used to determine LTOP limits shall be those previously reviewed by the NRC based on ASME Code Case N-514. The Materials Program is in accordance with BAW-1543A, "Integrated Reactor Vessel Surveillance Program."

(continued)

5.6 Procedures, Programs and Manuals

5.6.2.19 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) (continued)

c. The reactor vessel pressure and temperature limits, including those for heatup and cooldown rates, shall be determined so that all applicable limits (e.g., heatup limits, cooldown limits, and inservice leak and hydrostatic testing limits) of the analysis are met.

d. The PTLR, including revisions or supplements thereto, shall be provided upon issuance for each reactor vessel fluency period.

5.6.2.20 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, " Performance-Based Containment Leak Test Program," dated September 1995.

The peak calculated containment internal pressure for the design basis loss of coolant accident, Pa, is 54.2 psig. The containment design pressure is 55 psig.

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.25% of primary containment air weight per day.

Leakage Rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is $\leq$ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq$ 0.60 L_a for the Type B and Type C Tests and $\leq$ 0.75 L_a for Type A Tests.

2. Air lock testing acceptance criteria are:

   a. Overall air lock leakage range is $\leq$ 0.05 L_a when tested at $\geq$ P_a.

   b. For each door, leakage rate is $\leq$ 0.01 L_a when tested at $\geq$ 8.0 psig.

   The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

   The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

BASES

APPLICABLE SAFETY ANALYSES

The P/T limits are not derived from Design Basis Accident (DBA) analyses. They are prescribed during normal operation to avoid encountering pressure, temperature, and temperature rate of change conditions that might cause undetected flaws to propagate and cause nonductile failure of the RCPB. Reference 8 establishes the methodology for determining the P/T limits. Since the P/T limits are not derived from any DBA analysis, there are no accident analysis acceptance limits related to the P/T limits. Rather, the P/T limits are acceptance limits themselves since they preclude operation in an unanalyzed condition.

RCS P/T limits satisfy Criterion 2 of the NRC Policy Statement.

LCO

The two elements of this LCO are:

a. The limit curves for heatup, cooldown, ISLH testing, and LTOP, and

b. Limits on the rate of change of temperature.

The LCO limits apply to all components of the RCS, except the pressurizer. The limits define allowable P/T operating regions and permit a large number of operating cycles while providing a wide margin to nonductile failure.

The limits for the rate of change of temperature control the thermal gradient through the vessel wall and are used as inputs for calculating the heatup, cooldown, and ISLH P/T limit curves. Thus, the LCO for the rate of change of temperature restricts stresses caused by thermal gradients and also ensures the validity of the P/T limit curves.

Violating the LCO limits places the reactor vessel outside of the bounds of the stress analyses and can increase stresses in other RCPB components. The consequences depend on several factors, as follows:

a. The severity of the departure from the allowable operating P/T regime or the severity of the rate of change of temperature;

(continued)

BASES

REFERENCES (continued)	6. 10 CFR 50, Appendix H.
	7. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.
	8. BAW-10046A, Rev. 2, April 1986.
	9. ASME Code Case N-514, "Low Temperature Overpressure Protection, Section XI, Division 1."

BASES

BACKGROUND (continued)

RCS Vent Requirements

Once the RCS is depressurized, a vent exposed to the containment atmosphere will maintain the RCS at ambient containment pressure in an RCS overpressure transient, if the relieving requirements of the maximum credible LTOP transient do not exceed the capabilities of the vent. Thus, the vent path must be capable of relieving the flow of the limiting LTOP transient and maintaining pressure below LTOP limits. The required vent capacity may be provided by one or more vent paths.

For an RCS vent to meet the flow capacity, it requires removing a pressurizer safety valve, or similarly establishing a vent by removing an OTSG primary side manway cover or primary side handhole cover, or other vents as determined to be sufficient. The vent path(s) must be above the level of reactor coolant, so as not to drain the RCS when open.

APPLICABLE SAFETY ANALYSES

Analyses (Ref. 3) demonstrate that the reactor vessel can be adequately protected against overpressurization transients during shutdown. At 264°F and below, overpressure prevention is provided by an OPERABLE PORV and a restricted coolant level in the pressurizer or by a depressurized RCS and a sufficient size RCS vent.

The actual temperature at which the pressure in the P/T limit curve can fall below the PORV setpoint increases as vessel material toughness decreases due to neutron embrittlement. Each time the P/T limit curves are revised, the LTOP System will be re-evaluated to ensure that its functional requirements can still be met with the PORV and pressurizer level method or the depressurized and vented RCS condition.

Transients that are capable of overpressurizing the RCS have been identified and evaluated (Ref. 4). These transients relate to either mass input or heat input: actuating the HPI System, discharging the CFTs, energizing the pressurizer heaters, failing the makeup control valve open, losing decay heat removal, starting a reactor coolant pump (RCP) with a

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

large temperature mismatch between the primary and secondary coolant systems, and adding nitrogen to the pressurizer.

HPI actuation and CFT discharge are the transients that result in exceeding P/T limits within < 10 minutes, in which time no operator action is assumed to take place. In the rest, operator action after that time precludes overpressurization. The analyses demonstrate that the time allowed for operator action is adequate, or the events are self limiting and do not exceed LTOP limits.

The following are required during the LTOP MODES to ensure that transients do not occur, which either of the LTOP overpressure protection means cannot handle:

a. Deactivating all but one makeup pump;

b. Deactivating HPI; and

c. Immobilizing CFT discharge isolation valves in their closed positions, when CFT pressure is greater than the PTLR limit.

The Reference 3 analyses demonstrate the PORV can maintain RCS pressure below limits when only one makeup pump is actuated. Consequently, the LCO allows only one makeup pump to be OPERABLE in the LTOP MODES.

Inadvertent actuation of HPI can cause the RCS pressure to exceed the LTOP limits determined by Reference 3 sooner than the 10 minutes allowed. Consequently, HPI must be deactivated by assuring that an inadvertent HPI actuation can not inject water into the RCS through the HPI valves.

The isolated CFTs must have their discharge valves closed and the valve power breakers in their open positions. The analyses show the effect of CFT discharge is over a narrower RCS temperature range (208°F and below) than that of the LCO (264°F and below).

Analyses performed per Reference 1 established the temperature of LTOP Applicability at 263°F at the vessel quarter-t location. The LTOP enable temperature of 264°F includes correction for instrument uncertainty. The vessel materials were assumed to have a neutron irradiation accumulation equal to 32 effective full power years (EFPYs) of operation and plant operation is assumed to be in compliance with the RCS heatup and cooldown limitations of

(continued)

APPLICABLE SAFETY ANALYSES (continued)

LCO 3.4.3. In addition, Reactor Coolant Pump (RCP) operation is assumed to be restricted to greater than 85°F for the first two pumps, and greater than 220°F for pump three. Pump four operation is not considered for LTOP. During plant heatup, the vessel metal temperature lags the reactor coolant temperature. Stopping the Reactor Coolant System heatup and holding for a period of 90 minutes allows the vessel metal temperature at the quarter-t location to stabilize to the reactor coolant temperature.

This LCO will deactivate the HPI actuation when the RCS temperature is ≤ 264°F. The consequences of a small break LOCA in LTOP MODE 4 are consistent with those discussed in the bases for LCO 3.5.3, "ECCS-Shutdown," by having a maximum of one makeup pump OPERABLE for the required one OPERABLE ECCS train.

Reference 3 contains the acceptance limits that satisfy the LTOP requirements. These limits, in combination with the limitations of LCO 3.4.3, and administrative restrictions on RCP operation, provide the assurance that the reactor vessel is protected from exceeding the requirements of ASME Code Case N-514. Any change to the RCS operation or design must be evaluated against these analyses to determine the impact of the change on the LTOP acceptance limits.

<u>PORV Performance</u>

Analyses (Ref. 3) show that the vessel is protected when the PORV is set to open at ≤ 458 psig. The PORV setpoint at or below the derived limit ensures the requirements of ASME Code Case N-514 (Reference 1) will be met. The PORV lift setpoint limit of ≤ 454 psig includes correction for instrument uncertainty.

The PORV setpoint will be re-evaluated for compliance when the revised P/T limits conflict with the LTOP analysis limits. The P/T limits are periodically modified as the reactor vessel material toughness decreases due to embrittlement induced by neutron irradiation. Revised P/T limits are determined using neutron fluence projections and the results of examinations of the reactor vessel material irradiation surveillance specimens. The Bases for LCO 3.4.3 discuss these examinations.

The PORV is considered an active component. Therefore, its failure represents the worst case LTOP single active failure.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

Pressurizer Level Performance

Analyses of operator response time show that the pressurizer level must be maintained ≤ 160 inches to provide the 10 minute action time for correcting transients. (Ref. 3) The pressurizer level limit of ≤ 155 inches includes correction for instrument uncertainties.

The pressurizer level limit will also be re-evaluated for compliance each time P/T limit curves are revised based on the results of the vessel material surveillance.

RCS Vent Performance

With the RCS depressurized, analyses show a vent of 0.75 square inches is capable of mitigating the transient resulting from full opening of the makeup control valve while the makeup pump is providing RCS makeup. The capacity of a vent this size is greater than the flow resulting from this credible transient.

The RCS vent size will also be re-evaluated for compliance each time P/T limit curves are revised based on the results of the vessel material surveillance.

The vent is passive and is not subject to active failure.

(continued)

BASES

LCO

The LCO requires an LTOP System OPERABLE with a limited coolant input capability and a pressure relief capability. To limit coolant input, the LCO requires only one makeup pump OPERABLE, the HPI deactivated, and the CFT discharge isolation valves closed and immobilized. For pressure relief, it requires either the pressurizer coolant at or below a maximum level and the PORV OPERABLE with a lift setting at or below the LTOP limit or the RCS depressurized and a vent established.

NOTE: The limits and values presented in this LCO for the PORV lift setpoint, enable temperature, and pressurizer level are corrected for instrument uncertainty. The instrumentation to be used by plant operators to assure compliance with these limits and values are specified in approved plant operating procedures.

The pressurizer is available with a coolant level ≤ 155 inches.

The PORV is OPERABLE when its block valve is open, its lift setpoint is set at ≤ 454 psig and testing has proven its ability to open at that setpoint, and motive power is available to the PORV and the PORV control circuits.

For the depressurized RCS, an RCS vent is OPERABLE when open with an area of at least 0.75 square inches.

APPLICABILITY

This LCO is applicable in MODE 4 when RCS temperature is ≤ 264°F, in MODE 5, and in MODE 6 when the reactor vessel head is not completely detensioned. The Applicability temperature of 264°F is established by analyses in accordance with Reference 1. With the vessel head completely detensioned, overpressurization is not possible. The vessel head is completely detensioned when the pre-stress has been relieved from all of the studs, and the nuts are free spinning.

The Applicability is modified by a Note stating that CFT isolation is only required when the CFT pressure is more than or equal to the maximum RCS pressure for the existing RCS temperature, as allowed in LCO 3.4.3. This Note permits the CFT discharge valve surveillance performed only under these pressure and temperature conditions.

(continued)

BASES

ACTIONS

Allowable times are specified in the LCO to implement the actions and controls described below. These times range from immediately to 12 hours. The times are based on operational and industry experience and regulatory recommendations. The times are intended to balance the time necessary to accomplish the actions and the likelihood of experiencing a limiting transient during the action.

A.1 and B.1

With two or more makeup pumps capable of injecting into the RCS or if the HPI is activated, immediate actions are required to render the other pump(s) inoperable or to deactivate HPI. Emphasis is on immediate deactivation because inadvertent injection with one or more HPI pump OPERABLE is the event of greatest significance, since it causes the greatest pressure increase in the shortest time.

Required Action A.1 is modified by a Note that permits two pumps capable of RCS injection for ≤ 15 minutes to allow for pump swaps.

The deactivation of HPI is accomplished by assuring that an inadvertent HPI actuation can not inject water into the RCS through the HPI valves. This may be accomplished by combinations of equipment as determined appropriate for the existing plant conditions such as, disabling all HPI valves or disabling all Makeup pumps. If powered components are used to accomplish deactivation, power should be removed to assure positive lockout.

C.1, D.1, and D.2

An unisolated CFT requires isolation within 1 hour only when the CFT pressure is at or greater than the maximum RCS pressure for the existing temperature allowed in LCO 3.4.3.

If isolation is needed and cannot be accomplished in 1 hour, Required Action D.1 and Required Action D.2 provide two options, either of which must be performed in 12 hours. By increasing the RCS temperature to > 208°F, the CFT pressure of 600 psig cannot exceed the LTOP limits if both tanks are fully injected. Depressurizing the CFTs below the LTOP limit of 454 psig also prevents exceeding the LTOP limits in the same event.

(continued)

BASES

ACTIONS (continued)

E.1, F.1 and F.2

With the pressurizer level more than 155 inches, the time for operator action in a pressure increasing event is reduced. The postulated event most affected in the LTOP MODES is failure of the makeup control valve, which fills the pressurizer relatively rapidly. Restoration is required within 1 hour.

If restoration within 1 hour cannot be accomplished, Required Actions F.1 and F.2 must be performed within 12 hours. Actions F.1 and F.2 limit the makeup capability by closing the makeup control valve and its isolation valve, which is not required with a high pressurizer level, and permit cooldown and depressurization to continue. When the makeup is isolated, RCS heatup must be stopped because heat addition decreases the reactor coolant density and increases the pressurizer level. Operations such as starting RC pumps and reducing decay heat removal should not be performed when in this condition.

G.1, H.1, and H.2

With the PORV inoperable, overpressure relieving capability is lost, and restoration of the PORV within 1 hour is required. If that cannot be accomplished, the ability of the Makeup System to add water must be limited within the next 12 hours.

If restoration cannot be completed within 1 hour, Required Action H.1 and Required Action H.2 must be performed to limit RCS water addition capability. Makeup is not required to be deactivated since it may be needed to maintain the RCS coolant level. Required Action H.1 and Required Action H.2 require reducing the makeup tank level to 88 inches and deactivating the low low makeup tank level interlock to the borated water storage tank. This makes the available makeup water volume insufficient to exceed the LTOP limit by a makeup control valve full opening.

(continued)

BASES

ACTIONS (continued)

I.1 and I.2

With the pressurizer level above 155 inches and the PORV inoperable or the LTOP System inoperable for any reason other than cited in Condition A through H, the system must be restored to OPERABLE status within 1 hour. When this is not possible, Required Action I.2 requires the RCS depressurized and vented within 12 hours from the time either Condition started.

One or more RCS vents may be used. A vent size of ≥ 0.75 square inches is specified. Such a vent keeps the pressure from full flow of one Makeup pump with a wide open makeup control valve within the LCO limit.

This size RCS vent cannot maintain RCS pressure below LTOP limits if the HPI or CFT systems are inadvertently actuated. Therefore, verification of the deactivation of two Makeup pumps, HPI injection, and the CFTs must accompany the depressurizing and venting. Since these systems are required deactivated by the LCO, SR 3.4.11.1, SR 3.4.11.2, and SR 3.4.11.3 require verification of their deactivated status every 12 hours.

SURVEILLANCE REQUIREMENTS

The following surveillance requirement frequencies are shown by operating experience and industry accepted practice to be sufficient to regularly assess conditions for potential degradation and to verify operation within the requirements.

SR 3.4.11.1, SR 3.4.11.2, and SR 3.4.11.3

Verifications must be performed that only one makeup pump is capable of injecting into the RCS, the HPI is deactivated, and the CFT discharge isolation valves are closed and immobilized. These Surveillances ensure the minimum coolant input capability will not create an RCS overpressure condition to challenge the LTOP System. The Surveillances are required at 12 hour intervals.

A Note modifies SR 3.4.11.3 by only requiring this Surveillance when CFT isolation is required.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.11.4

Verification of the pressurizer level at ≤ 155 inches by observing control room or other indications ensures a cushion of sufficient size is available to reduce the rate of pressure increase from potential transients.

The 30 minute Surveillance Frequency during heatup and cooldown must be performed for the LCO Applicability period when temperature changes can cause pressurizer level variations. This Frequency may be discontinued when the ends of these conditions are satisfied, as defined in plant procedures. Thereafter, the Surveillance is required at 12 hour intervals.

A Note modifies the SR by not requiring the Surveillance when complying with LCO 3.4.11.b.

SR 3.4.11.5

Verification that the PORV block valve is open ensures a flow path to the PORV. This is required at 12 hour intervals.

A Note modifies the SR by not requiring the Surveillance when complying with LCO 3.4.11.b.

SR 3.4.11.6

When stipulated by LCO 3.4.11.b, the RCS vent of at least 0.75 square inch must be verified open for relief protection. For an unlocked vent opening, the Frequency is every 12 hours. For a locked vent opening in the RCS, the required Frequency is every 31 days.

A Note modifies the SR by requiring the Surveillance when complying with LCO 3.4.11.b.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.11.7

A CHANNEL FUNCTIONAL TEST is required within 12 hours before or after decreasing RCS temperature to ≤ 264°F and every 31 days thereafter to ensure the setpoint is proper for using the PORV for LTOP. PORV actuation is not needed, as it could depressurize the RCS.

The 12 hour frequency considers the unlikelihood of a low temperature overpressure event during the time.

SR 3.4.11.8

The performance of a CHANNEL CALIBRATION is required every 24 months. The CHANNEL CALIBRATION for the LTOP setpoint ensures that the PORV will be actuated at the appropriate RCS pressure by verifying the accuracy of the instrument string. The calibration can only be performed in shutdown. The frequency considers the refueling cycle.

SR 3.4.11.9

Verification that the PORV is selected to the low range setpoint ensures the overpressure protection flow path through the PORV. This is required at 12 hour intervals.

A Note modifies the SR by not requiring the Surveillance when complying with LCO 3.4.11.b.

(continued)

BASES

REFERENCES

1. ASME Code Case N-514, "Low Temperature Overpressure Protection Section XI, Division 1".

2. Generic Letter 88-11, "NRC Position on Radiation Embrittlement of Reactor Vessel Materials and its Impact on Plant Operations".

3. FPC Calculation F98-0013, "CR-3 32 EFPY P/T Limits".

4. B&W Nuclear Services (FTI) Document 51-1176431-01, "Crystal River 3 Reactor Vessel Low Temperature Overpressure Protection (LTOP)".

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 183 TO FACILITY OPERATING LICENSE NO. DPR-72

REVISED PRESSURE/TEMPERATURE LIMITS REPORT

AND

LOW TEMPERATURE OVER-PRESSURE PROTECTION LIMITS

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

1.0 INTRODUCTION

By letter dated October 30, 1998, as supplemented by letters dated December 31, 1998, and May 12, 1999, Florida Power Corporation (the licensee), proposed changes to the Improved Technical Specifications (ITS) for Crystal River Unit 3 (CR-3) to reflect new low temperature overpressure protection (LTOP) limits based on revised fluence values, and to include references to American Society of Mechanical Engineers (ASME) Code Case N-514, "Low Temperature Overpressure Protection" and Topical Report BAW-1543A, "Integrated Reactor Vessel Surveillance Program." In addition, the licensee proposed to revise the CR-3 Pressure/Temperature Limits Report (PTLR) (1) to reflect the use of the fluence methodology in Topical Report BAW-2241P, "Fluence and Uncertainty Methodologies" for developing pressure/temperature (P/T) limit curves, and (2) to place the LTOP curve, developed using ASME Code Case N-514, in the PTLR. The current PTLR, which contains P/T limit curves for 15 effective full power years (EFPY), was approved by the U.S. Nuclear Regulatory Commission (NRC or Commission) on December 20, 1993. The proposed P/T limit curves are for 32 EFPY. In addition to the revised fluence values, new information regarding material data and heatup and cooldown rates are also reflected in the proposed P/T limit curves. The proposed changes will affect Technical Specification (TS) Sections 5.6.2.19 and 3.4.11. Likewise, the Bases for Sections 3.4.11 and 3.4.3 are to be revised accordingly. The December 31, 1998 and May 12, 1999, supplements did not affect the original proposed no significant hazards determination, or expand the scope of the request as noticed in the Federal Register.

2.0 BACKGROUND

The LTOP system is designed to protect the pressure vessel boundary from overpressurization during low temperature operation. At CR-3, overpressure mitigation is accomplished using a combination of a pressurizer power operated relief valve (PORV) and a restricted water level in the pressurizer and/or a reactor coolant system (RCS) vent to depressurize the reactor. The system is manually enabled by the operator and uses a single setpoint as the lift pressure for the PORV. The design basis for the Crystal River LTOP system considers mass as well as heat addition transients. The analysis of the mass addition transient accounts for the injection from one makeup pump to the RCS with the control valve failed to the fully open position. The analysis for the heat addition transient accounts for the heat input from the secondary sides of the once-through steam generators (OTSG) into the RCS upon starting a single reactor coolant pump. In the heat addition transient the analysis assumes the OTSGs are filled to 95 percent with 420 degree F feedwater and with RCS water at 150 degrees F. The results of the transient analyses indicate that the mass addition transient is limiting while the heat addition transient is self-limiting below the pressure-temperature limits.

2.1 Regulatory Requirements

The staff evaluates pressure/temperature limits using the guidance of Generic Letters (GL) 88-11, "NRC Position on Radiation Embrittlement of Vessel Materials and Its Impact on Plant Operations", and GL 92-01, "Reactor Vessel Structural Integrity," and their revisions and supplements; Regulatory Guide (RG) 1.99, Rev. 2, "Radiation Embrittlement of Reactor Vessel Materials," Standard Review Plan (SRP) Sections 5.2.2 and 5.3.2, and Branch Technical Position RSB 5-2. SRP 5.2.2, "Overpressure Protection" provides review criteria for the evaluation of the adequacy of overpressure protection for the reactor coolant pressure boundary to meet the requirements of General Design Criterion (GDC) 31. Branch Technical Position RSB 5-2, "Overpressurization Protection of Pressurized Water Reactors While Operating at Low Temperatures," is part of SRP 5.2.2. For the protection of the RCS boundary GDC 14 and 31 are applicable. GDC 14 requires that the RCS boundary be designed, fabricated, erected and tested so as to have an extremely low probability of abnormal leakage, rapidly propagating failure or gross rupture. GDC 31 requires that sufficient margin be provided to assure that the reactor coolant pressure boundary behaves in a non brittle manner under the stresses of normal operation, maintenance, test and accident conditions, with a low probability of rapidly propagating fracture.

Title 10, Code of Federal Regulations (10 CFR) Sections 50.60 and 50.61 require that licensees demonstrate that the effects of progressive embrittlement by neutron irradiation do not compromise the integrity of the reactor pressure vessel. To this end, two analyses are required: one to determine the P/T limits for normal heatup and cooldown operations and one to assess the vessel's ability to maintain its integrity during an emergency shutdown with cold water injection (i.e., pressurized thermal shock (PTS)). 10 CFR 50.60 invokes Appendices G and H to 10 CFR Part 50, while 10 CFR 50.61 is the PTS rule which requires a PTS assessment.

Appendix G to 10 CFR Part 50 specifies fracture toughness requirements for ferritic materials of the reactor coolant boundary. It requires that the pressure-temperature limits for the reactor coolant system be at least as conservative as those obtained by the methodology in the 1989 edition of Appendix G to Section XI of the ASME Code. Alternatives to Appendix G may be used when an exemption is granted by the NRC. An exemption approving the use of ASME Code Case N-514 was granted on July 3, 1997. Appendix H to 10 CFR Part 50 requires a reactor vessel materials surveillance program to monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region. These changes result from exposure of these materials to neutron irradiation and changes of the thermal environment. Material specimens exposed in the surveillance capsules are removed and tested at specified time intervals to monitor changes in the fracture toughness of the material.

3.0 EVALUATION

Crystal River is currently operating at about 13 EFPY and is projected to reach the current license limit of 15 EFPY during the forthcoming cycle 12. The proposed revised operating limits are for 32 EFPY and are based on: (1) revised fluence values derived from the recently approved methodology described in BAW-2241, (2) more conservative chemistry data for the limiting beltline material, (3) more accurate instrument uncertainty calculations for the RCS temperature, pressure and level instruments (4) the most limiting transient, i.e., mass addition and (5) an inadvertent discharge of the core flood tanks. Code Case N-514 was used in the determination of the current limits and is also used in the determination of the proposed limits. The methodology used in the current limits evaluation was approved in December 1997.

All components of the RCS are designed to withstand the effects of cyclic loads resulting from system pressure and temperature changes. These loads are introduced by heatup and cooldown operations, power transients, and reactor trips. Appendix G to 10 CFR Part 50 defines P/T limit curves for heatup, cooldown, LTOP, and inservice leak and hydrostatic testing. Each curve defines an acceptable region for normal operation. The curves are used for operational guidance during heatup and cooldown maneuvering, when P/T indications are monitored and compared to the applicable curve to determine that operation is within the allowable region.

3.1 The LTOP Curve

As was pointed out previously in Section 2.0, for Crystal River, the limiting transient is mass addition with a failed open makeup valve. A modification of the analytical pressure-temperature limits allows a 10-minute time interval for operator action to mitigate the mass addition which is the limiting LTOP transient. The curve is a composite of the heatup, cooldown, hydrostatic pressurization and the 10-minute delay curves. Inadvertent discharge of the core flood tanks is taken into account. The curve has been added to the PTLR because it has the potential to be more limiting than either the heatup or the cooldown curves. The LTOP curve was developed using a methodology previously approved by the NRC and therefore including the curve in the PTLR is acceptable. The basis for TS 3.4.3 has also been revised to reflect the new methodology for the 32 EFPY curves.

3.2 LTOP Limits

For the limiting transient above, (technical specification 3.4.11) the set-points reflect the projected material properties at 32 EFPY and the revised instrument uncertainties. The PORV lift pressure limit is set at less or equal to 454 psig (the old value was 457 psig). The lowest pressure (derived from Code Case N-514) in the LTOP curve is 458 psig which is adjusted for instrument uncertainty to 454 psig. The proposed LTOP enable temperature is 264 degrees F, including instrument uncertainty (the old value was 259 degrees F). The calculation for the enable temperature was also estimated in accordance with Code Case N-514. The maximum pressurizer level setpoint is 155 inches (including instrument uncertainty) which allows for 10 minutes of potential operator mitigative action to limit the LTOP transient. Finally the temperature at which inadvertent discharge of the core flood tanks would overpressurize the RCS with respect to the LTOP curve has been raised from 197 degrees F to 208 degrees F.

The LTOP enable temperature defines the limit below which the LTOP system is required to be operable. The methodology used in this determination is the same as that used in the 1997 evaluation. The methodology complies with the ASME Code using an enable RCS liquid temperature corresponding to the reactor vessel thickness of 1/4T (where T is the vessel wall thickness) metal temperature of RT_{NDT} + 50 degrees F or 200 degrees F, whichever is higher. Instrument error of 5 degrees F is also applied. A very small temperature difference (about 1 degree F) was estimated between the RCS coolant temperature and 1/4T when heatup is suspended for 90 minutes. The Technical Specification Bases B3.4.11 reflect a heatup holding period of at least 90 minutes after the enable temperature has been exceeded and prior to exiting this LTOP limiting condition for operation. The licensee proposed an enable temperature of 268 degrees F consisting of RT_{NDT} of 213 degrees F, the required 50 degrees F margin and instrument error of 5 degrees F. This temperature is acceptable because it is conservative with respect to the minimum enable temperature allowed by the ASME code.

The proposed PORV lift pressure limit is ≤ 454 psig. This value is set to mitigate low temperature overpressure transients and to prevent violation of the Appendix G Section IV.2 (to 10 CFR Part 50) "Pressure-Temperature Limits and Minimum Temperature Requirements." In the proposed application, Code Case N-514 is applied which allows peak pressures of 110 percent of Appendix G Section IV.2.b. As stated above, the NRC has approved the use of Code Case N-514 at CR-3. The analytical limit is 458 psig with an allowance of 4 psig for instrument error. The licensee's analysis methodology is the same as the methodology applied in the estimation of the currently approved limits. The licensee performed an analysis of the mass addition transient (limiting transient) assuming water injection from one makeup pump through a failed fully open control valve with two reactor coolant pumps operating. The peak pressure would remain below 458 psig at 85 degrees F. The calculation was based on a pressurizer level of 155 inches, thus providing sufficient gas volume to allow at least 10 minutes for operator action. In these 10 minutes it is anticipated that the operator would take mitigating action to stop mass addition and the overpressurization. However, should the operator fail to take the appropriate action, the PORV flow capacity is sufficient to protect the vessel. The licensee estimated an analytical result of 458 psig and proposed 454 psig. Because this value protects the Appendix G Section IV.2 required limits we find the proposed PORV lift limit value acceptable.

Associated with the determination of the PORV lift limit is the maximum pressurizer water level. The licensee assumed a 160-inch water level and demonstrated that the peak pressure will remain below the pressure temperature limit at 85 degrees F. Allowing for instrument error the proposed maximum allowable pressurizer level was set at 155 inches. This value is acceptable because it supports the pressure-temperature limits.

A make-up tank mass addition overpressurization was analyzed. With RCS pressure equal or less than 464 psig, pressurizer level at or lower than 160 inches and the make-up tank level less than 88 inches, the make-up tank will deplete in less than 10 minutes without resulting in overpressurization. Therefore, the 88 inch make-up tank level remains the same for 32 EFPY as for 15 EFPY.

The licensee's calculations indicate that the PORV and RCS vents provide adequate flow (withtheir respective 1.049 inch and 0.75 inch diameter openings) to avoid RCS overpressurization due to an inadvertent make-up flow transient at an RCS pressure of 446 psia. Therefore adequate flow will exist at 458 psig (473 psia) to ensure that the LTOP limit is not exceeded up to 32 EFPY.

A spectrum of seven overpressurization scenarios was investigated. Review of these scenarios indicate that the licensee has covered the potential causes of overpressurization. Thus, we find that the mass addition is indeed the critical transient.

3.3 Review of the 32 EFPY P/T Limit Curves

Licensees' evaluation

The licensee determined that the limiting beltline material in the CR-3 vessel is the lower nozzle beltline to the upper shelf circumferential weld. Forty percent of this weld from the reactor pressure vessel inside the wall was fabricated from weld wire heat number 71249. The remaining weld was fabricated from weld wire heat number 8T1554. They will be referred to as Weld 71249 and Weld 8T1554. The licensee evaluated Weld 71249 using both Position 1.1 (surveillance data not available) and Position 2.1 (surveillance data available) of RG 1.99, Rev. 2 to calculate the adjusted reference temperature (ART) of the limiting weld at the 1/4 thickness (1/4T) vessel location. In the first approach, the licensee used chemistry data of 0.26 percent copper (Cu) and 0.61 percent nickel (Ni) to obtain a chemistry factor (CF) of 181.6 degrees F for Weld 71249. The product of the CF and a fluence factor is the mean value of the adjustment in reference temperature, delta RT_{NDT}. For Weld 71249, the delta RT_{NDT} at 32 EFPY is 138.6 degrees F based on the neutron fluence of 4.27 x 10^{19} n/cm^2 at the 1/4T vessel location. The ART is the sum of the initial RT_{NDT} (10 degrees F), delta RT_{NDT} (138.6 degrees F), and a margin term (56 degrees F). This resulted in a calculated ART for this material of 204.6 degrees F.

The licensee also performed an evaluation using three surveillance data points of the same heat from Turkey Point Unit 3 and 4. CR-3 does not have Weld 71249 in its surveillance capsules. The CF, based on the surveillance data is 192.6 degrees F. Since one of the three surveillance data points is not credible, the licensee used a full margin of 56 degrees F, and calculated the ART to be 213 degrees F. This larger ART was used in the subsequent P/T limits calculation for 32 EFPY.

To calculate the ART at 3/4T of the vessel wall for the lower nozzle beltline to the upper shelf circumferential weld, the chemistry data for Weld 8T1554 was used. Since surveillance data for Weld 8T1554 is not available, Position 1.1 of RG 1.99, Rev. 2 was used to calculate ART for this material. Based on the chemistry data of 0.18 percent Cu and 0.63 percent Ni, an initial RT_{NDT} of -5 degrees F, a margin of 68 degrees F, and a neutron fluence of 1.55 x 10^{19} n/cm^2 at the 3/4T vessel location, the licensee determined that the ART at 3/4T for 32 EFPY is 144.5 degrees F. This ART was used in the subsequent P/T limits calculation.

NRC Staff's evaluation

The staff compared the information supplied by the licensee in this submittal to the previously docketed information from the licensee's response to GL 92-01, Rev. 1, Supplement 1, dated June 30, 1998. This comparison indicated that the initial RT_{NDT} value for Weld 71249 has been revised from a generic value of -5 degrees F to a material-specific value of 10 degrees F. This change was based on data from Electric Power Research Institute Report NP-373 for welds manufactured from weld wire heat number 71249. The initial RT_{NDT} value of +10 degrees F is acceptable because using the sum of this value and its corresponding margin term of 56 degrees F is more conservative than using the generic initial RT_{NDT} of -5 degrees F and its margin term of 68.5 degrees F.

The comparison also indicated that the licensee has used outdated chemistry data of 0.26 percent Cu and 0.61 percent Ni for Weld 71249 and 0.18 percent Cu and 0.63 percent Ni for Weld 8T1554 in its evaluation. The chemistry data should be 0.23 percent Cu and 0.59 percent Ni for Weld 71249 and 0.16 percent Cu and 0.57 percent Ni for Weld 8T1554 as reported in BAW-2325, which was referenced in the submittal dated June 30, 1998. Using outdated chemistry data for both welds did not impact the proposed P/T limits because (1) the licensee's chemistry data gives larger CF, which, in turn, gives more restrictive P/T limits, and (2) the more conservative CF based on surveillance data for Weld 71249 was eventually used in the proposed P/T limits calculation. The RVID includes Weld 8T1554 in the summary report for CR-3 because, although this weld is not reviewed in accordance with 10 CFR 50.61, the PTS rule, it is reviewed in accordance with Appendix G of 10 CFR Part 50 for P/T limits.

Substituting the ART of 213 degrees F at 1/4T and 144.5 degrees F at 3/4T into equations in SRP 5.3.2, the staff verified that the proposed P/T limit curves (at 32 EFPY) for heatup, cooldown, and inservice leak hydrostatic tests meet the beltline material requirements in Appendix G of 10 CFR Part 50. This verification was made after the staff included the difference between the RCS coolant temperature and the wall metal temperature in these curves. Therefore, the staff finds the proposed P/T limit curves using the new fluence methodology and the inclusion of this fluence methodology in the PTLR acceptable.

3.4 References of Code Case N-514 and Topical Report BAW-1543A

The licensee proposed to reference ASME Code Case N-514 and Topical Report BAW-1543A, in ITS 5.6.2 and in the ITS Bases. Since both the Code Case and the Topical Report have been approved for use at CR-3, the addition of these references is an editorial change and is acceptable.

4.0 STATE CONSULTATION

Based upon a letter dated March 8, 1991, from Mary E. Clark of the State of Florida, Department of Health and Rehabilitative Services, to Deborah A. Miller, Licensing Assistant, U.S. NRC, the State of Florida does not desire notification of issuance of license amendments.

5.0 ENVIRONMENTAL CONSIDERATIONS

The amendment changes requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The

Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (63 FR 71965). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSIONS

Based on its review of the licensee's proposal, the staff has determined that the proposed LTOP limits and P/T curves using the fluence methodology described in Topical Report BAW-2241P and the changes to the CR-3 ITS and PTLR to reflect their use, provide adequate assurance that the reactor coolant system will be adequately protected from the effects of pressure and temperature fluctuations. The staff concludes that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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