Progress Energy
Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.90

October 18, 2007
3F1007-03

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Crystal River Unit 3 – License Amendment Request #296, Revision 2: Measurement Uncertainty Recapture Response to Request for Additional Information (TAC No. MD5500)

Reference: FPC to NRC letter, 3F0607-05, LAR #296, Revision 1, Measurement Uncertainty Recapture Uprate, dated June 28, 2007

Dear Sir:

On July 9, 2007, the Nuclear Regulatory Commission (NRC) issued, by email, a Request for Additional Information (RAI) regarding License Amendment Request (LAR) #296 (Reference). The RAI requested information pertaining to the Crystal River Unit 3 (CR-3) Improved Technical Specifications (ITS). In accordance with the provisions of 10 CFR 50.90, Florida Power Corporation (FPC), doing business as Progress Energy Florida, Inc., hereby provides the response to the RAI. This response provides a change to the CR-3 ITS and draft ITS Bases.

Regulatory commitments are listed in Attachment E.

The No Significant Hazards Consideration evaluation included in section 4.0 of Attachment B does not invalidate the No Significant Hazards Consideration evaluation included in the Reference.

The CR-3 Plant Nuclear Safety Committee has reviewed this ITS revision request and recommended it for approval.

If you have any questions regarding this submittal, please contact Mr. Dennis Herrin, Acting Supervisor, Licensing and Regulatory Programs at (352) 563-4633.

Sincerely,

Dale E. Young

Dale E. Young
Vice President
Crystal River Nuclear Plant

A001

DEY/par

NRR

Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Powerline Street
Crystal River, FL 34428

Attachments:
- A. Response to Request for Additional Information – Technical Specification Branch
- B. Description of the Proposed Change, Background, Technical Analysis, Determination of No Significant Hazards Considerations, and the Environmental Assessment
- C. Proposed Improved Technical Specification Pages (Bases Pages for Information Only) - Strikeout and Shadowed Text Format
- D. Proposed Improved Technical Specification Pages (Bases Pages for Information Only) – Revision Bar Format
- E. List of Regulatory Commitments

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

STATE OF FLORIDA

COUNTY OF CITRUS

Dale E. Young states that he is the Vice President, Crystal River Nuclear Plant for Florida Power Corporation, doing business as Progress Energy Florida, Inc.; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

Dale E. Young

Dale E. Young
Vice President
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 18th day of Oct., 2007, by Dale E. Young.

Ellen Deppolder

Signature of Notary Public
State of Florida

ELLEN DEPPOLDER
MY COMMISSION # DD 408539
EXPIRES: July 8, 2009
Bonded Thru Notary Public Underwriters

(Print, type, or stamp Commissioned
Name of Notary Public)

Personally Known ✓ -OR- Produced Identification _____

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #296, REVISION 2

ATTACHMENT A

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATION BRANCH

Request for Additional Information Response

On July 9, 2007, Florida Power Corporation (FPC) received an electronic Request for Additional Information (RAI) concerning License Amendment Request (LAR) #296, Revision 1 (Reference) via email. FPC hereby provides the following responses to this RAI from the Technical Specification Branch.

NRC Request

The NRC staff requests additional information to ensure the CR3 TS have the necessary TS remedial actions for CR3 to operate at the new maximum thermal power level when the Nuclear Overpower High Setpoint instrument channels cannot be calibrated using Caldon Leading Edge Flowmeter CheckPlus System in the performance of SR 3.3.1.2. The nature of this request was contained in the NRC staff guidance provided in RIS 2002-03, "Guidance on the Content of Measurement Uncertainty Recapture Power Uprate Applications," Attachment 2, "Evaluation of Feedback Received During the Public Workshop on August 23, 2001 (Arranged by Guidance Section)," Item I.5:

What should a licensee do when the instrument is out of service?

Staff approvals of topical reports for the feedwater measurement technique identify what information is appropriate for addressing this comment (typically included as the first criterion). Therefore, this information is covered by Items I.1.C. and I.1.D. of the draft guidance. However, as a result of this comment, the staff has modified Section I. to provide more explicit guidance in this area.

Specifically, a licensee should propose an allowed outage time for the instrument, similar to the allowed outage times contained in the technical specifications for other equipment. If an approved allowed outage time is exceeded, the licensee should reduce the power level of the plant to ensure that it appropriately accounts for the uncertainty in the instrumentation being relied upon. Item I.1.G. and H. of the guidance now address the staff's information needs for this case.

The guidance information in item I.5 was not provided in the April 25, 2007 LAR.

RAI

Using the Crystal River Unit 3 (CR3) TS as modified by the proposed TS changes, show that proposed CR3 TS would meet the RIS 2002-03 guidance or justify not meeting the guidance. In the discussion describe how the CR3 TS definition of operability for supported and support system requirements and requirements of SR 3.0.1 would apply if the Caldon Leading Edge Flowmeter CheckPlus System is out of service for performance of SR 3.3.1.2.

FPC Response

FPC has re-evaluated the appropriate format and content of the proposed Improved Technical Specification (ITS) changes and discussed them with the Technical Specification (TS) Branch in a public meeting on September 14, 2007. The resulting ITS changes and associated Bases changes (for information only) are included in Attachments B, C, and D of this submittal.

The proposed CR-3 ITS changes conform with the guidance provided in RIS 2002-03. The Caldon (now Cameron) Leading Edge Flowmeter (LEFM) CheckPlus system will be installed in addition to the existing Feedwater flow instrumentation. Additional instrumentation changes are also being implemented to reduce secondary heat balance uncertainty. When the required inputs to the high accuracy secondary heat balance are unavailable, the existing instrumentation will continue to support the secondary heat balance calculation, with a maximum power generation of 2568 MWt. A Bases change, under the CR-3 Bases Control Program, will list required inputs into the secondary heat balance that are required to be available in order to meet the high accuracy secondary heat balance uncertainty requirements.

Furthermore, the CR-3 safety analyses require that the associated Reactor Protection System (RPS) limit be selected consistent with the accuracy of the secondary heat balance. For the high accuracy instruments, a 104.9% Nuclear Overpower - High Trip Allowable Value (AV) is appropriate. For the lower accuracy instruments, a 103.3% AV is appropriate. In each case, the In-Plant Setpoints are chosen to protect the AVs. These setpoints, when coupled with the associated heat balance and instrument uncertainties, ensure actuation of the trip function at or below the same thermal power level.

The LEFM 'system' and associated computational and control systems are designed to provide alarms and indications in the control room that inform the operators about input failures. Operators have been trained on actions required to respond to the failure of the LEFM system. The actions include entry into ITS 3.3.1 Condition J, which requires reactor power to be reduced to the current value of 2568 MWt and subsequent reduction of the RPS Nuclear Overpower-High Trip setpoint.

The proposed CR-3 ITS changes will invalidate the need to specifically identify support and supported system operability requirements. If any required high accuracy instruments fail, the secondary heat balance will continue to be calculated and displayed in the control room using the existing (2% accuracy) instrumentation. Therefore, SR 3.3.1.2 will continue to be performed at its required frequency.

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #296, REVISION 2

ATTACHMENT B

DESCRIPTION OF THE PROPOSED CHANGE, BACKGROUND, TECHNICAL ANALYSIS, DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS, AND THE ENVIRONMENTAL ASSESSMENT

DESCRIPTION OF THE PROPOSED CHANGE BACKGROUND, TECHNICAL ANALYSIS, DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS, AND THE ENVIRONMENTAL ASSESSMENT

1.0 DESCRIPTION OF PROPOSED CHANGE

The proposed change would revise the Crystal River Unit 3 (CR-3) Improved Technical Specifications (ITS) to read as follows:

A new Condition (Condition J) is being added to ITS 3.3.1 to allow for operation without the new high accuracy instrumentation. In this situation, the existing (2% uncertainty) instruments provide inputs for the secondary heat balance algorithm used for indication and control of plant power production. Specific actions are required to be performed if the required high accuracy instrumentation is not functional.

A new Condition (Condition K) is being added to ITS 3.3.1 to provide required actions for when Condition J cannot be satisfied. This Condition is similar to Condition F and requires plant shutdown and Control Rod Drive trip breakers opened if the plant cannot reduce power and reset the Nuclear Overpower – High Trip setpoints within the completion time. This change will also assure CR-3 is able to take advantage of LCO 3.0.4 and allow Mode changes while in the action statement.

A new note (note 2) is being added to Surveillance Requirement (SR) 3.3.1.2 that states the surveillance must be performed with the required high accuracy secondary heat balance instrumentation except when in Condition J.

An additional Allowable Value is being added to Table 3.3.1-1, Function 1.a, Nuclear Overpower High Setpoint, for operation without the required high accuracy inputs, and also two new notes that describe when the allowable values are applicable. Specifically, for operation without the required high accuracy instrumentation, the Allowable Value will be $\leq$ 103.3% RTP, while the setpoint will remain $\leq$ 104.9% RTP for operation with the required high accuracy instrumentation.

Two additional notes are being proposed for Table 3.3.1-1, to add additional controls to the Nuclear Overpower – High Reactor Protection System (RPS) setpoint. This setpoint has been determined to be a Limiting Safety System Setting setpoint, and per the September 7, 2005, NRC letter to the Nuclear Energy Institute, requires the additional control.

Draft ITS Bases changes are included for information only.

There are additional administrative changes due to repagination and editorial corrections.

The No Significant Hazards Consideration evaluation included in section 4.0 of this Attachment does not invalidate the No Significant Hazards Consideration evaluation included in the Reference.

2.0 BACKGROUND

Initially, CR-3 committed to placing administrative controls for the high accuracy instrumentation being used for the Measurement Uncertainty Recovery (MUR) uprate into a plant procedure (CP-500), which is the document that CR-3 uses much like a Technical

Requirements Manual, as opposed to including an ITS change. Resulting from an electronic request for additional information, received on July 9, 2007, this change adds to the previous ITS pages included in License Amendment Request (LAR) #296, Revision 1 (Reference). The ITS change will include requirements to lower power and reset the Nuclear Overpower-High Trip setpoint if the required high accuracy instruments are unavailable. If the instrumentation is incapable of providing readings with an accuracy of 0.4% or less, then the plant will have to reduce power to 2568 MWt within 12 hours and the Nuclear Overpower - High Trip setpoint will have to be reset to a lower value (103.3% of 2609 MWt instead of 104.9% of 2609 MWt) within 48 hours. This ITS change will eliminate the requirement to revise plant Compliance Procedure CP-500, "Special Actions and ReportingRequirements."

3.0 TECHNICAL ANALYSIS

CR-3 has evaluated the proposed revision to LAR #296, Revision 1, to determine if the changes to the ITS will impact the response of the plant or personnel to anticipated transients or accidents. The proposed changes to the ITS include the same controls as described in the Reference. The actions to be taken and the timeframes for the actions are unchanged from the administrative controls identified in the Reference.

4.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Florida Power Corporation (FPC) has evaluated the proposed revision to License Amendment Request (LAR) #296, Revision 1, against the criteria of 10 CFR 50.92 to determine if any significant hazards consideration is involved. FPC has concluded that this proposed LAR does not involve a significant hazards consideration. The following is a discussion of how each of the 10 CFR 50.92 (c) criteria is satisfied.

(1) Does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The changes proposed by this revision to the LAR will not cause additional changes to plant hardware or software. The ITS revision incorporates changes into the Reactor Protection System (RPS) Instrumentation Specification (ITS 3.3.1) that was initially planned for incorporation into the CR-3 equivalent of the Technical Requirements Manual. The ITS govern the limits for plant operation and equipment status. Plant operation will be limited to prevent extended operation at the new power level with the secondary heat balance not based on the higher accuracy instrumentation. As such, this LAR does not involve a significant increase in the probability or consequences of an accident previously evaluated.

(2) *Does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

The changes addressed by this revision to the LAR will not cause additional changes to plant hardware or software. All hardware and operational changes are addressed in LAR #296, Revision 1, FPC to NRC letter 3F0607-05, dated June 28, 2007. The aforementioned ITS revision establishes limits and provides guidance on implementing the RPS Instrumentation TS, Section 3.3.1. Therefore, this LAR does not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) *Does not involve a significant reduction in a margin of safety.*

The changes addressed by this revision to the LAR will not cause additional changes to plant hardware or software. The LAR briefly discusses administrative controls for when the required high accuracy instrumentation is not functional. A NRC Request for Additional Information specifically requested that the administrative controls be located in the ITS. Since additional controls are being added to the ITS, and nothing is being deleted, there is no reduction in a margin of safety.

5.0 ENVIRONMENTAL IMPACT EVALUATION

10 CFR 51.22(c)(9) provides criteria for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if the amendment changes a requirement with respect to use of a facility component within the restricted area provided that (i) the amendment involves no significant hazards consideration, (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

Florida Power Corporation (FPC) has reviewed this License Amendment Request (LAR) and has determined that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22, no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the proposed license amendment. The basis for this determination is that this amendment does not significantly change feedwater flow instrumentation located inside the restricted area and:

(i) The proposed license amendment does not involve a significant hazards consideration, as described in the significant hazards evaluation.

(ii) As discussed in the Technical Analysis and the No Significant Hazards Evaluation, this change does not result in a significant change or significant increase in the release associated with any Design Basis Accident. The bounding accident involved, the Loss of Coolant Accident, has release rates not significantly affected by the increase in core power. Additionally, the bounding accident was analyzed at 2619 MWt which bounds the power level of this MUR uprate. Likewise, there will be no significant change in the types or a significant increase in the amounts of any effluents released offsite during normal operation. The specific activity of the primary and secondary coolant is expected to increase by no more than the percentage increase in power level. Therefore, the amount and specific activity of solid waste is not expected to increase significantly.

Gaseous and liquid effluent releases are expected to increase from current values by no more than the percentage increase in power level. Offsite release concentrations and doses will continue to be maintained within the limits of 10 CFR 20 and 10 CFR 50, Appendix I, in accordance with the requirements of the CR-3 Offsite Dose Calculation Manual (ODCM). The ODCM contains methodologies and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, the

methodologies and parameters used in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and controls for maintaining doses to the public from radioactive effluents As Low As Reasonably Achievable (ALARA). The proposed changes will not result in changes in the operation or design of the gaseous, liquid, or solid waste systems and will not create any new or different radiological release pathways.

Therefore, the proposed LAR will not result in a significant change in the types or the amounts of any effluents that may be released offsite.

(iii) The proposed LAR does not significantly increase core power and resultant dose rates in the Reactor Building and accessible areas of the plant. Individual worker exposures will be maintained within acceptable limits by the CR-3 ALARA Program. Therefore, the proposed LAR does not result in a significant increase to the individual or cumulative occupational radiation exposure.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #296, REVISION 2

ATTACHMENT C

Proposed Improved Technical Specification Pages

(Bases Pages for Information Only)

Strikeout and Shadowed Text Format

3.3 INSTRUMENTATION

3.3.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1 Four channels of RPS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

CONDITIONS	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place channel in bypass or trip.	1 hour
B. Two channels inoperable.	B.1 Place one channel in trip. AND B.2 Place second channel in bypass.	1 hour 1 hour
C. One or more RCPPM for one RCP inoperable.	C.1 Trip the RCPPM(s).	4 hours
D. Required Action and associated Completion Time of Condition A or B not met.	D.1 Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately
E. Required Action and associated Completion Time of Condition C not met.	E.1.1 Verify 4 RCPs in operation. AND E.1.2 Reduce THERMAL POWER <2475 MW_{th} OR E.2 Enter Condition F	1 hour 1 hour 1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action D.1 and referenced in Table 3.3.1-1 or by Required Action E.2.	F.1 Be in MODE 3. AND F.2 Open all CONTROL ROD drive (CRD) trip breakers.	6 hours 6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1-1.	G.1 Open all CRD trip breakers.	6 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1-1.	H.1 Reduce THERMAL POWER < 45% RTP.	6 hours
I. As required by Required Action D.1 and referenced in Table 3.3.1-1.	I.1 Reduce THERMAL POWER < 20% RTP.	6 hours
J. Secondary heat balance not based on required high accuracy instrumentation.	J.1 Reduce THERMAL POWER to $\leq$2568 MW_{th} AND J.2 Reduce Nuclear Overpower - High Setpoint to $\leq$ 103.3% RTP.	12 hours 48 hours
K. Required Action and associated Completion Time of Condition J not met.	K.1 Be in MODE 3. AND K.2 Open all CONTROL ROD drive (CRD) trip breakers.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.1-1 to determine which SRs apply to each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	----------NOTES---------- 1. Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. 2. High accuracy instrumentation is required to be utilized when performing calorimetric secondary heat balance comparison unless Condition J has been entered. ---------- Verify calorimetric secondary heat balance is ≤ 2% RTP greater than power range channel output. Adjust power range channel output if calorimetric exceeds power range channel output by > 2% RTP.	24 hours
SR 3.3.1.3	----------NOTE---------- Not required to be performed until 24 hours after THERMAL POWER (TP) is ≥ 30% RTP. ---------- Compare out of core measured AXIAL POWER IMBALANCE (API_0) to incore measured AXIAL POWER IMBALANCE (API_1) as follows: $(RTP/TP)(API_0 - API_1)$ = imbalance error Perform CHANNEL CALIBRATION if the absolute value of the imbalance error is ≥ 2.5% RTP.	31 days
SR 3.3.1.4	Perform CHANNEL FUNCTIONAL TEST.	45 days on a STAGGERED TEST BASIS

(continued)

Table 3.3.1-1 (page 1 of 1)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower -				
a. High Setpoint	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.5[f,g] SR 3.3.1.7	≤ 104.9% RTP [d] ≤ 103.3% RTP [e]
b. Low Setpoint	2[b],3[b] 4[b],5[b]	G	SR 3.3.1.1 SR 3.3.1.5	≤ 5% RTP
2. RCS High Outlet Temperature	1,2	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 618°F
3. RCS High Pressure	1,2	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	≤ 2355 psig
4. RCS Low Pressure	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	≥ 1900 psig
5. RCS Variable Low Pressure	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	RCS Variable Low Pressure equation in COLR
6. Reactor Building High Pressure	1,2,3[c]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 4 psig
7. Reactor Coolant Pump Power Monitor (RCPPM)	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	More than one pump drawing ≤ 1152 or ≥ 14,400 kW
8. Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7	Nuclear Overpower RCS Flow and AXIAL POWER IMBALANCE setpoint envelope in COLR
9. Main Turbine Trip (Control Oil Pressure)	≥ 45% RTP	H	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≥ 45 psig
10. Loss of Both Main Feedwater Pumps (Control Oil Pressure)	≥ 20% RTP	I	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≥ 55 psig
11. Shutdown Bypass RCS High Pressure	2[b],3[b] 4[b],5[b]	G	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 1820 psig

(a) When not in shutdown bypass operation.

(b) During shutdown bypass operation with any CRD trip breakers in the closed position and the CRD Control System (CRDCS) capable of rod withdrawal.

(c) With any CRD trip breaker in the closed position and the CRDCS capable of rod withdrawal.

(d) With secondary heat balance based on required high accuracy instrumentation.

(e) With secondary heat balance not based on required high accuracy instrumentation.

(f) If the as-found channel setpoint is conservative with respect to the Allowable Value (AV), but outside its predefined as-found acceptance criteria band, then the channel should be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the AV, the channel shall be declared inoperable.

(g) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the pre-established In-Plant Setpoint, or a value that is more conservative than the pre-established In-Plant Setpoint; otherwise the channel shall not be returned to OPERABLE status. The pre-established In-Plant Setpoint and the methodology used to determine the pre-established In-Plant Setpoint, the predefined as-found acceptance criteria band, and the as-left acceptance criteria are specified in the FSAR.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

a. Nuclear Overpower - High Setpoint (continued)

when the neutron power reaches the design overpower will limit THERMAL POWER to a maximum value of the design overpower.

Because it serves to limit THERMAL POWER levels the Nuclear Overpower-High Setpoint trip protects against violation of the-DNBR and fuel centerline melt SLs. However, the RCS Variable Low Pressure, and Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE, provide more direct protection of these Safety Limits. The role of the Nuclear Overpower-High Setpoint trip is to limit reactor THERMAL POWER below the highest power at which the other two trips are known to provide protection.

The Nuclear Overpower-High Setpoint trip also provides transient protection for rapid positive reactivity excursions during power operations. These events include the rod withdrawal accident, the rod ejection accident, and the steam line break accident. By providing a trip during these events, the Nuclear Overpower-High Setpoint trip protects against excessive power levels and also serves to reduce reactor power to prevent violation of the RCS pressure SL.

Rod withdrawal accident analyses cover a large spectrum of reactivity insertion rates (rod worths), including slow and rapid rates of power increase. At high reactivity insertion rates, the Nuclear Overpower-High Setpoint trip provides the primary protection. At low reactivity insertion rates, the high RCS pressure trip provides primary protection. The specified Allowable Value is selected to ensure that a trip occurs before reactor power exceeds the highest point at which the RCS Variable Low Pressure and the Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE trips are analyzed to provide protection against DNB and fuel centerline melt.

The Allowable Value does not account for harsh environment induced errors, because the trip will actuate prior to degraded environmental conditions being reached. The pre-established In-Plant Setpoint and Allowable Value are based on the calculated total loop uncertainty per the methodology documented in the FSAR. The pre-established In-Plant Setpoint is the Limiting Safety System Setting setpoint as required by 10 CFR 50.36.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

a. Nuclear Overpower - High Setpoint (continued)

The Nuclear Overpower - High Setpoint Allowable Value 104.9% RTP is based on the assumption that the required high accuracy secondary heat balance instrumentation is functional. The high accuracy secondary heat balance instrumentation is necessary to provide sufficient margin between the RPS setpoint and Analytical Limits. ITS 3.3.1 Action J addresses this Condition.

The required high accuracy instrumentation referred to in this Specification includes: the Leading Edge Flow Meters, Feedwater temperature, Feedwater pressure, Main Steam temperature, Main-Steam pressure, let-down flow, let-down temperature (RCS Tcold and letdown flow after cooler), make-up temperature, and RCS pressure.

b. Nuclear Overpower-Low Setpoint

While in shutdown bypass, with the Shutdown Bypass RCS High Pressure trip OPERABLE, the Nuclear Overpower setpoint trip must be administratively reset to ≤ 5% RTP. The low power setpoint, in conjunction with the 1820 psig Shutdown Bypass RCS High Pressure setpoint, ensure the plant is protected from excessive power conditions when other RPS trips are bypassed. The Allowable Value was chosen to be as low as practical and still lie within the range of the power range nuclear instrumentation.

2. RCS High Outlet Temperature

The RCS High Outlet Temperature trip, in conjunction with the RCS Low Pressure and RCS Variable Low Pressure trips, provides protection for the DNBR SL. A trip is initiated whenever RCS hot leg temperature approaches the conditions necessary for DNB. Portions of each RCS High Outlet Temperature trip channel are common with the RCS Variable Low Pressure trip. The RCS High Outlet Temperature trip provides steady state protection for the DNBR SL.

The RCS High Outlet Temperature trip limits the maximum RCS temperature to below the highest value for which DNB protection by the Variable Low Pressure trip is ensured. The Allowable Value is selected to ensure that a trip occurs before hot leg temperatures reach the point beyond which the RCS Low Pressure and Variable Low Pressure trips are analyzed. The

(continued)

BASES

ACTIONS (continued)

H.1

If the Required Action and associated Completion Time of Condition A or B are not met and Table 3.3.1-1 directs entry into Condition H, the plant must be placed in a MODE in which the specified RPS trip Function is not required to be OPERABLE. To achieve this status, THERMAL POWER must be reduced < 45% RTP. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach 45% RTP from full power conditions in an orderly manner without challenging plant systems.

I.1

If the Required Action and associated Completion Time of Condition A or B are not met and Table 3.3.1-1 directs entry into Condition I, the plant must be placed in a MODE in which the specified RPS trip Function is not required to be OPERABLE. To achieve this status, THERMAL POWER must be reduced < 20% RTP. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach 20% RTP from full power conditions in an orderly manner without challenging plant systems.

J.1 and J.2

If the required high accuracy secondary heat balance instrumentation is not available, neither the Nuclear Overpower - High Setpoint Allowable Value of 104.9% RTP in Table 3.3.1-1, nor a nominal power level of 2609 MWt will support extended operations. The Nuclear Overpower - High Setpoint and the appropriate reactor power ensure actuation of the RPS prior to the power level assumed in the accident analysis. Therefore, Condition J must be entered. Condition J reduces reactor thermal power to 2568 MWt within 12 hours and requires the selection of an In-Plant Setpoint associated with an Allowable Value of 103.3% RTP.

The Allowable Values for the Nuclear Overpower - High Setpoint are given in Table 3.3.1-1 for 2609 MWt and 2568 MWt.

The 12 hour and 48 hour timeframes are adequate because the overpower trip is not directly dependent on the high accuracy secondary heat balance instrumentation. The secondary heat balance is used to assure the nuclear instrumentation is adjusted as needed to the appropriate thermal power level every 24 hours per SR 3.3.1.2. Failure

(continued)

BASES

ACTIONS

J.1 and J.2 (continued)

or unavailability of the required high accuracy instrumentation has no impact on the reactor trip setpoint itself or the nuclear instrumentation indication of reactor power. Lowering power to less than 2568 MWt enables the alternate secondary heat balance instrumentation (2% accuracy) to ensure the plant is maintained below 2619 MWt. If the required high accuracy secondary heat balance instrumentation remains unavailable, an In-Plant Setpoint associated with a 103.3% Allowable Value must be established. The 48 hour Completion Time period is acceptable because of the low probability of significant drift of the nuclear instrumentation indication or setpoint in that short time period. The 12 and 48 hour time periods provide adequate time to either restore the required equipment or take the Required Actions in an orderly manner. These completion times are to allow for orderly reactivity control and work management.

K.1 and K.2

If the Required Action and associated Completion Time of Condition J are not met, the plant must be placed in a MODE in which the specified RPS trip Functions are not required to be OPERABLE. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and to open the CRD trip breakers without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The SRs are modified by a note indicating the SR required for each RPS Function are identified by the SRs column of Table 3.3.1-1. Most Functions are subject to CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION, with those credited in the accident analysis also requiring RPS RESPONSE TIME testing.

Table 3.3.1-1 has footnotes d and e that describe the conditions for selecting which Allowable Value for the Nuclear Overpower - High Trip setpoint is appropriate. Additionally, footnotes f and g are applicable to the Nuclear Overpower-High Trip setpoint as the associated pre-established In-Plant Setpoint is a Limiting Safety System Setting (LSSS).

SR 3.3.1.5 is modified by 2 footnotes as identified in Table 3.3.1-1. The first footnote requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Value. Evaluation of instrument performance will verify that the instrument will continue to behave in accordance with safety analysis setpoint methodology assumptions. The purpose of the assessment is to ensure confidence in the instrument performance prior to returning the instrument to service. The channel(s) will also be identified in the Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition for continued OPERABILITY. The second footnote requires that the as-left setting for the instrument be returned to within the as-left tolerance of the pre-established In-Plant Setpoint or to a value more conservative than the pre-established In-Plant Setpoint. The as-left and as-found tolerances, as applicable, will be applied to the pre-established In-Plant Setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left instrument cannot be returned to a setting within the as-left tolerance of the pre-established In-Plant Setpoint, the instrument channel must remain inoperable.

The second footnote also requires that the pre-established In-Plant Setpoint and the methodologies for calculating the as-left and as-found tolerances be located in the FSAR.

SR 3.3.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. For the majority of RPS functions, the CHANNEL CHECK consists of a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. In the case of the Reactor Building High Pressure, Main Turbine Trip, and Loss of Main Feedwater Pumps Trip-Functions, the CHANNEL CHECK is more qualitative in nature for these Functions, the SR cannot be accomplished by comparing indication of the parameter on the individual channels. Instead, the CHANNEL CHECK consists of a verification the channel trip light, is not illuminated. While this does not provide the same level of detail as the indication comparison, it does provide some confidence that a channel failure will be detected in the interval between CHANNEL FUNCTIONAL TESTS.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1 (continued)

Acceptance criteria for the CHANNEL CHECK are determined by the plant staff and presented in the Surveillance Procedure. The criteria may consider, but is not limited to channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the acceptance criteria, it may be an indication that the transmitter or the signal processing equipment has excessively drifted. If the channels are within the acceptance criteria, it is an indication that the channels are OPERABLE.

The 12 hour Frequency is based on operating experience that demonstrates channel failure is an infrequent occurrence.

SR 3.3.1.2

This surveillance is modified by a Note that states that the surveillance is required to be performed with the required high accuracy secondary heat balance instrumentation unless Condition J has been entered, in which case the nozzle based heat balance can be used. Condition J has requirements for lowering power to 2568 MWt and resetting the Nuclear Overpower - High Setpoint when the required high accuracy instrumentation is unavailable as input into the secondary heat balance calculation.

SR 3.3.1.2 is a secondary heat balance comparison to the power range nuclear instrumentation channels. The heat balance is performed once every 24 hours when reactor power is > 15% RTP and consists of a comparison of the results of the calorimetric with each power range channel output. The outputs of the power range channels are normalized to the calorimetric. If the calorimetric exceeds the NI channel output by > 2% RTP, the NI must be adjusted. In this Condition, the trip Functions which receive an input from the NI are not considered inoperable provided the channel is adjusted to within the limit. A Note clarifies that this Surveillance is required only when reactor power is ≥ 15% RTP and that 24 hours is allowed for performing the first Surveillance after reaching 15% RTP. This SR 3.0.4 type allowance is provided since at lower power levels, calorimetric comparison data tends to be more variable and the RPS trip is ensured prior to 2609 MWt.

The power range channel's output must be adjusted consistent with the calorimetric results if the calorimetric exceeds the power range channel's output by > 2% RTP. The value of

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2 (continued)

2% is consistent with the value assumed in the safety analyses of FSAR, Chapter 14 (Ref. 2) accidents. These checks and, if necessary, the adjustment of the power range channels ensure that channel accuracy is maintained within the error margins assumed in the analysis. The 24 hour Frequency is adequate, based on plant operating experience, which demonstrates the change in the difference between the power range indication and the calorimetric results rarely exceeds a small fraction of 2% in any 24 hour period. Furthermore, the control room operators monitor redundant indications and alarms to detect deviations in channel outputs.

Operation at 2609 MWt (100% RTP) requires that this surveillance be performed with the required high accuracy secondary heat balance instrumentation (0.4% accuracy). If the required high accuracy secondary heat balance instrumentation is unavailable, this surveillance must be performed using alternative heat balance instrumentation (2.0% accuracy) at 2568 MWt.

SR 3.3.1.3

A comparison of power range nuclear instrumentation channels (excores) against incore detectors shall be performed at a 31 day Frequency when reactor power is ≥ 30% RTP. A Note clarifies that 24 hours is allowed for performing the first Surveillance after reaching 30% RTP. If the absolute difference between the power range and incore measurements is ≥ 2.5% RTP, the trip Functions which receive an input from the NI are not considered inoperable, but a CHANNEL CALIBRATION that adjusts the measured imbalance to agree with the incore measurements is necessary. If the power range channel cannot be properly recalibrated, the channel is declared inoperable. The calculation of the Allowable Value envelope assumes a difference in out of core to incore measurements of 2.5%. Additional inaccuracies beyond those that are measured are also included in the setpoint envelope calculation. The 31 day Frequency is adequate, considering that long term drift of the excore linear amplifiers is

(continued)

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #296, REVISION 2

ATTACHMENT D

Proposed Improved Technical Specification Pages

(Bases Pages for Information Only)

Revision Bar Format

3.3 INSTRUMENTATION

3.3.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1 Four channels of RPS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

CONDITIONS	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place channel in bypass or trip.	1 hour
B. Two channels inoperable.	B.1 Place one channel in trip. AND B.2 Place second channel in bypass.	1 hour 1 hour
C. One or more RCPPM for one RCP inoperable.	C.1 Trip the RCPPM(s).	4 hours
D. Required Action and associated Completion Time of Condition A or B not met.	D.1 Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately
E. Required Action and associated Completion Time of Condition C not met.	E.1.1 Verify 4 RCPs in operation. AND E.1.2 Reduce THERMAL POWER <2475 MW_{th} OR E.2 Enter Condition F	1 hour 1 hour 1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. As required by Required Action D.1 and referenced in Table 3.3.1-1 or by Required Action E.2.	F.1	Be in MODE 3.	6 hours
	AND		
	F.2	Open all CONTROL ROD drive (CRD) trip breakers.	6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1-1.	G.1	Open all CRD trip breakers.	6 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1-1.	H.1	Reduce THERMAL POWER < 45% RTP.	6 hours
I. As required by Required Action D.1 and referenced in Table 3.3.1-1.	I.1	Reduce THERMAL POWER < 20% RTP.	6 hours
J. Secondary heat balance not based on required high accuracy instrumentation.	J.1	Reduce THERMAL POWER to $\leq$2568 MW_{th}	12 hours
	AND		
	J.2	Reduce Nuclear Overpower - High Setpoint to $\leq$ 103.3% RTP.	48 hours
K. Required Action and associated Completion Time of Condition J not met.	K.1	Be in MODE 3.	6 hours
	AND		
	K.2	Open all Control Rod drive (CRD) trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

----------NOTE ----------
Refer to Table 3.3.1-1 to determine which SRs apply to each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	----------NOTES---------- 1. Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. 2. High accuracy instrumentation is required to be utilized when performing calorimetric secondary heat balance comparison unless Condition J has been entered. ---------- Verify calorimetric secondary heat balance is ≤ 2% RTP greater than power range channel output. Adjust power range channel output if calorimetric exceeds power range channel output by > 2% RTP.	24 hours
SR 3.3.1.3	----------NOTE---------- Not required to be performed until 24 hours after THERMAL POWER (TP) is ≥ 30% RTP. ---------- Compare out of core measured AXIAL POWER IMBALANCE (API_0) to incore measured AXIAL POWER IMBALANCE (API_1) as follows: $(RTP/TP)(API_0 - API_1)$ = imbalance error Perform CHANNEL CALIBRATION if the absolute value of the imbalance error is ≥ 2.5% RTP.	31 days
SR 3.3.1.4	Perform CHANNEL FUNCTIONAL TEST.	45 days on a STAGGERED TEST BASIS

(continued)

Table 3.3.1-1 (page 1 of 1)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower -				
a. High Setpoint	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.5[f,g] SR 3.3.1.7	≤ 104.9% RTP [d] ≤ 103.3% RTP [e]
b. Low Setpoint	2[b],3[b] 4[b],5[b]	G	SR 3.3.1.1 SR 3.3.1.5	≤ 5% RTP
2. RCS High Outlet Temperature	1,2	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 618°F
3. RCS High Pressure	1,2	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	≤ 2355 psig
4. RCS Low Pressure	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	≥ 1900 psig
5. RCS Variable Low Pressure	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	RCS Variable Low Pressure equation in COLR
6. Reactor Building High Pressure	1,2,3[c]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 4 psig
7. Reactor Coolant Pump Power Monitor (RCPPM)	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7	More than one pump drawing ≤ 1152 or ≥ 14,400 kW
8. Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE	1,2[a]	F	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7	Nuclear Overpower RCS Flow and AXIAL POWER IMBALANCE setpoint envelope in COLR
9. Main Turbine Trip (Control Oil Pressure)	≥ 45% RTP	H	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≥ 45 psig
10. Loss of Both Main Feedwater Pumps (Control Oil Pressure)	≥ 20% RTP	I	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≥ 55 psig
11. Shutdown Bypass RCS High Pressure	2[b],3[b] 4[b],5[b]	G	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6	≤ 1820 psig

(a) When not in shutdown bypass operation.

(b) During shutdown bypass operation with any CRD trip breakers in the closed position and the CRD Control System (CRDCS) capable of rod withdrawal.

(c) With any CRD trip breaker in the closed position and the CRDCS capable of rod withdrawal.

(d) With secondary heat balance based on required high accuracy instrumentation.

(e) With secondary heat balance not based on required high accuracy instrumentation.

(f) If the as-found channel setpoint is conservative with respect to the Allowable Value (AV), but outside its predefined as-found acceptance criteria band, then the channel should be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the AV, the channel shall be declared inoperable.

(g) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the pre-established In-Plant Setpoint, or a value that is more conservative than the pre-established In-Plant Setpoint: otherwise the channel shall not be returned to OPERABLE status. The pre-established In-Plant Setpoint and the methodology used to determine the pre-established In-Plant Setpoint, the predefined as-found acceptance criteria band, and the as-left acceptance criteria are specified in the FSAR.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

a. Nuclear Overpower - High Setpoint (continued)

when the neutron power reaches the design overpower will limit THERMAL POWER to a maximum value of the design overpower.

Because it serves to limit THERMAL POWER levels the Nuclear Overpower-High Setpoint trip protects against violation of the-DNBR and fuel centerline melt SLs. However, the RCS Variable Low Pressure, and Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE, provide more direct protection of these Safety Limits. The role of the Nuclear Overpower-High Setpoint trip is to limit reactor THERMAL POWER below the highest power at which the other two trips are known to provide protection.

The Nuclear Overpower-High Setpoint trip also provides transient protection for rapid positive reactivity excursions during power operations. These events include the rod withdrawal accident, the rod ejection accident, and the steam line break accident. By providing a trip during these events, the Nuclear Overpower-High Setpoint trip protects against excessive power levels and also serves to reduce reactor power to prevent violation of the RCS pressure SL.

Rod withdrawal accident analyses cover a large spectrum of reactivity insertion rates (rod worths), including slow and rapid rates of power increase. At high reactivity insertion rates, the Nuclear Overpower-High Setpoint trip provides the primary protection. At low reactivity insertion rates, the high RCS pressure trip provides primary protection. The specified Allowable Value is selected to ensure that a trip occurs before reactor power exceeds the highest point at which the RCS Variable Low Pressure and the Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE trips are analyzed to provide protection against DNB and fuel centerline melt.

The Allowable Value does not account for harsh environment induced errors, because the trip will actuate prior to degraded environmental conditions being reached. The pre-established In-Plant Setpoint and Allowable Values are based on the calculated total loop uncertainty per the methodology documented in the FSAR. The pre-established In-Plant Setpoint is the Limiting Safety System Setting setpoint as required by 10 CFR 50.36.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

a. Nuclear Overpower - High Setpoint (continued)

The Nuclear Overpower - High Setpoint Allowable Value 104.9% RTP is based on the assumption that the required high accuracy secondary heat balance instrumentation is functional. The high accuracy secondary heat balance instrumentation is necessary to provide sufficient margin between the RPS setpoint and Analytical Limits. ITS 3.3.1 Action J addresses this Condition.

The required high accuracy instrumentation referred to in this Specification includes; the Leading Edge Flow Meters, Feedwater temperature, Feedwater pressure, Main Steam temperature, Main-Steam pressure, let-down flow, let-down temperature (RCS Tcold and letdown flow after cooler), make-up temperature, and RCS pressure.

b. Nuclear Overpower-Low Setpoint

While in shutdown bypass, with the Shutdown Bypass RCS High Pressure trip OPERABLE, the Nuclear Overpower setpoint trip must be administratively reset to ≤ 5% RTP. The low power setpoint, in conjunction with the 1820 psig Shutdown Bypass RCS High Pressure setpoint, ensure the plant is protected from excessive power conditions when other RPS trips are bypassed. The Allowable Value was chosen to be as low as practical and still lie within the range of the power range nuclear instrumentation.

2. RCS High Outlet Temperature

The RCS High Outlet Temperature trip, in conjunction with the RCS Low Pressure and RCS Variable Low Pressure trips, provides protection for the DNBR SL. A trip is initiated whenever RCS hot leg temperature approaches the conditions necessary for DNB. Portions of each RCS High Outlet Temperature trip channel are common with the RCS Variable Low Pressure trip. The RCS High Outlet Temperature trip provides steady state protection for the DNBR SL.

The RCS High Outlet Temperature trip limits the maximum RCS temperature to below the highest value for which DNB protection by the Variable Low Pressure trip is ensured. The Allowable Value is selected to ensure that a trip occurs before hot leg temperatures reach the point beyond which the RCS Low Pressure and Variable Low Pressure trips are analyzed. The

(continued)

BASES

ACTIONS (continued)

H.1

If the Required Action and associated Completion Time of Condition A or B are not met and Table 3.3.1-1 directs entry into Condition H, the plant must be placed in a MODE in which the specified RPS trip Function is not required to be OPERABLE. To achieve this status, THERMAL POWER must be reduced < 45% RTP. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach 45% RTP from full power conditions in an orderly manner without challenging plant systems.

I.1

If the Required Action and associated Completion Time of Condition A or B are not met and Table 3.3.1-1 directs entry into Condition I, the plant must be placed in a MODE in which the specified RPS trip Function is not required to be OPERABLE. To achieve this status, THERMAL POWER must be reduced < 20% RTP. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach 20% RTP from full power conditions in an orderly manner without challenging plant systems.

J.1 and J.2

If the required high accuracy secondary heat balance instrumentation is not available, neither the Nuclear Overpower - High Setpoint Allowable Value of 104.9% RTP in Table 3.3.1-1 nor a nominal power level of 2609 MWt will support extended operation. The Nuclear Overpower - High Setpoint and the appropriate reactor power ensure actuation of the RPS prior to the power level assumed in the accident analysis. Therefore, Condition J must be entered. Condition J reduces reactor thermal power to 2568 MWt within 12 hours and requires the selection of an In-Plant Setpoint associated with an Allowable Value of 103.3% RTP.

The Allowable Values for the Nuclear Overpower - High Setpoint are given in Table 3.3.1-1 for 2609 MWt and 2568 MWt.

The 12 hour and 48 hour timeframes are adequate because the overpower trip is not directly dependent on the high accuracy secondary heat balance instrumentation. The secondary heat balance is used to assure the nuclear instrumentation is adjusted as needed to the appropriate thermal power level every 24 hours per SR 3.3.1.2. Failure

(continued)

BASES

ACTIONS

J.1 and J.2 (continued)

or unavailability of the required high accuracy instrumentation has no impact on the reactor trip setpoint itself or the nuclear instrumentation indication of reactor power. Lowering power to less than 2568 MWt enables the alternate secondary heat balance instrumentation (2% accuracy) to ensure the plant is maintained below 2619 MWt. If the required high accuracy secondary heat balance instrumentation remains unavailable, an In-Plant Setpoint associated with a 103.3% Allowable Value must be established. The 48 hour Completion Time period is acceptable because of the low probability of significant drift of the nuclear instrumentation indication or setpoint in that short time period. The 12 and 48 hour time periods provide adequate time to either restore the required equipment or take the Required Actions in an orderly manner. These completion times are to allow for orderly reactivity control and work management.

K.1 and K.2

If the Required Action and associated Completion Time of Condition J are not met, the plant must be placed in a MODE in which the specified RPS trip Functions are not required to be OPERABLE. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and to open the CRD trip breakers without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The SRs are modified by a note indicating the SR required for each RPS Function are identified by the SRs column of Table 3.3.1-1. Most Functions are subject to CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION, with those credited in the accident analysis also requiring RPS RESPONSE TIME testing.

Table 3.3.1-1 has footnotes d and e that describe the conditions for selecting which Allowable Values for the Nuclear Overpower - High Trip Setpoint is appropriate. Additionally, footnotes f and g are applicable to the Nuclear Overpower-High Trip setpoint as the associated pre-established In-Plant Setpoint is a Limiting Safety System Setting (LSSS).

SR 3.3.1.5 is modified by 2 footnotes as identified in Table 3.3.1-1. The first footnote requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable

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BASES

SURVEILLANCE REQUIREMENTS (continued)

Value. Evaluation of instrument performance will verify that the instrument will continue to behave in accordance with safety analysis setpoint methodology assumptions. The purpose of the assessment is to ensure confidence in the instrument performance prior to returning the instrument to service. The channel(s) will also be identified in the Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition for continued OPERABILITY. The second footnote requires that the as-left setting for the instrument be returned to within the as-left tolerance of the pre-established In-Plant Setpoint or to a value more conservative than the pre-established In-Plant Setpoint. The as-left and as-found tolerances, as applicable, will be applied to the pre-established In-Plant Setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left instrument cannot be returned to a setting within the as-left tolerance of the pre-established In-Plant Setpoint, the instrument channel must remain inoperable.

The second footnote also requires that the pre-established In-Plant Setpoint and the methodologies for calculating the as-left and as-found tolerances be located in the FSAR.

SR 3.3.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. For the majority of RPS functions, the CHANNEL CHECK consists of a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. In the case of the Reactor Building High Pressure, Main Turbine Trip, and Loss of Main Feedwater Pumps Trip-Functions, the CHANNEL CHECK is more qualitative in nature for these Functions, the SR cannot be accomplished by comparing indication of the parameter on the individual channels. Instead, the CHANNEL CHECK consists of a verification the channel trip light, is not illuminated. While this does not provide the same level of detail as the indication comparison, it does provide some confidence that a channel failure will be detected in the interval between CHANNEL FUNCTIONAL TESTS.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1 (continued)

Acceptance criteria for the CHANNEL CHECK are determined by the plant staff and presented in the Surveillance Procedure. The criteria may consider, but is not limited to channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the acceptance criteria, it may be an indication that the transmitter or the signal processing equipment has excessively drifted. If the channels are within the acceptance criteria, it is an indication that the channels are OPERABLE.

The 12 hour Frequency is based on operating experience that demonstrates channel failure is an infrequent occurrence.

SR 3.3.1.2

This surveillance is modified by a Note that states that the surveillance is required to be performed with the required high accuracy secondary heat balance instrumentation unless Condition J has been entered, in which case the nozzle based heat balance can be used. Condition J has requirements for lowering power to 2568 MWt and resetting the Nuclear Overpower-High Setpoint when the required high accuracy instrumentation is unavailable as input into the secondary heat balance calculation.

SR 3.3.1.2 is a secondary heat balance comparison to the power range nuclear instrumentation channels. The heat balance is performed once every 24 hours when reactor power is > 15% RTP and consists of a comparison of the results of the calorimetric with each power range channel output. The outputs of the power range channels are normalized to the calorimetric. If the calorimetric exceeds the NI channel output by > 2% RTP, the NI must be adjusted. In this Condition, the trip Functions which receive an input from the NI are not considered inoperable provided the channel is adjusted to within the limit. A Note clarifies that this Surveillance is required only when reactor power is ≥ 15% RTP and that 24 hours is allowed for performing the first Surveillance after reaching 15% RTP. This SR 3.0.4 type allowance is provided since at lower power levels, calorimetric comparison data tends to be more variable and the RPS trip is ensured prior to 2609 MWt.

The power range channel's output must be adjusted consistent with the calorimetric results if the calorimetric exceeds the power range channel's output by > 2% RTP. The value of

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2 (continued)

2% is consistent with the value assumed in the safety analyses of FSAR, Chapter 14 (Ref. 2) accidents. These checks and, if necessary, the adjustment of the power range channels ensure that channel accuracy is maintained within the error margins assumed in the analysis. The 24 hour Frequency is adequate, based on plant operating experience, which demonstrates the change in the difference between the power range indication and the calorimetric results rarely exceeds a small fraction of 2% in any 24 hour period. Furthermore, the control room operators monitor redundant indications and alarms to detect deviations in channel outputs.

Operation at 2609 MWt (100% RTP) requires that this surveillance be performed with the required high accuracy secondary heat balance instrumentation (0.4% accuracy). If the required high accuracy secondary heat balance instrumentation is unavailable, this surveillance must be performed using alternative heat balance instrumentation (2.0% accuracy) at 2568 MWt.

SR 3.3.1.3

A comparison of power range nuclear instrumentation channels (excores) against incore detectors shall be performed at a 31 day Frequency when reactor power is ≥ 30% RTP. A Note clarifies that 24 hours is allowed for performing the first Surveillance after reaching 30% RTP. If the absolute difference between the power range and incore measurements is ≥ 2.5% RTP, the trip Functions which receive an input from the NI are not considered inoperable, but a CHANNEL CALIBRATION that adjusts the measured imbalance to agree with the incore measurements is necessary. If the power range channel cannot be properly recalibrated, the channel is declared inoperable. The calculation of the Allowable Value envelope assumes a difference in out of core to incore measurements of 2.5%. Additional inaccuracies beyond those that are measured are also included in the setpoint envelope calculation. The 31 day Frequency is adequate, considering that long term drift of the excore linear amplifiers is

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FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #296, REVISION 2

ATTACHMENT E

LIST OF REGULATORY COMMITMENTS

List of Regulatory Commitments

The following table identifies those actions committed to by Florida Power Corporation (FPC) in this document. Any other actions discussed in the submittal represent intended or planned actions by FPC. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Supervisor, Licensing and Regulatory Programs of any questions regarding this document or any associated regulatory commitments.

Commitment	Due Date
The In-Plant Setpoint and the methodology used to develop the In-Plant Setpoint, the as-left, as-found, and Allowable Value setpoints will be documented in the Crystal River Unit 3 Final Safety Analysis Report.	60 days after receipt of the License Amendment