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STALL, J.A. Florida Power & Light Co.
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SUBJECT: Application for amend to license NPF-16, revising applicability of TS 3.4.7 re RCS chemistry, consistent w/ corresponding specification for Unit 1.

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FPL

March 3, 1998

L-98- 031
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: St. Lucie Unit 2
Docket No. 50-389
Proposed License Amendment
RCS Chemistry/Design Features/Administrative Controls

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) requests to amend Facility Operating License NPF-16 for St. Lucie Unit 2 by incorporating the attached Technical Specifications (TS) revisions. The amendment will revise applicability of TS 3.4.7, Reactor Coolant System Chemistry, consistent with the corresponding specification for St. Lucie Unit 1, and thereby eliminate unnecessary personnel radiation exposure associated with sampling during a defueled plant condition. In addition, administrative changes to TS 5.6.1.a.1, Design Features-Fuel Storage, Criticality, and Administrative Control 6.5.2.9.d, Technical Review Responsibilities are included.

It is requested that the proposed amendment, if approved, be issued by October 1, 1998, prior to the next scheduled refueling outage.

Attachment 1 is an evaluation of the proposed TS changes. Attachment 2 is the "Determination of No Significant Hazards Consideration." Attachment 3 contains a copy of the affected TS pages marked-up to show the proposed changes.

The proposed amendment has been reviewed by the St. Lucie Facility Review Group and the Florida Power & Light Company Nuclear Review Board. In accordance with 10 CFR 50.91 (b)(1), a copy of the proposed amendment is being forwarded to the State Designee for the State of Florida.

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AWJ

Please contact us if there are any questions about this submittal.

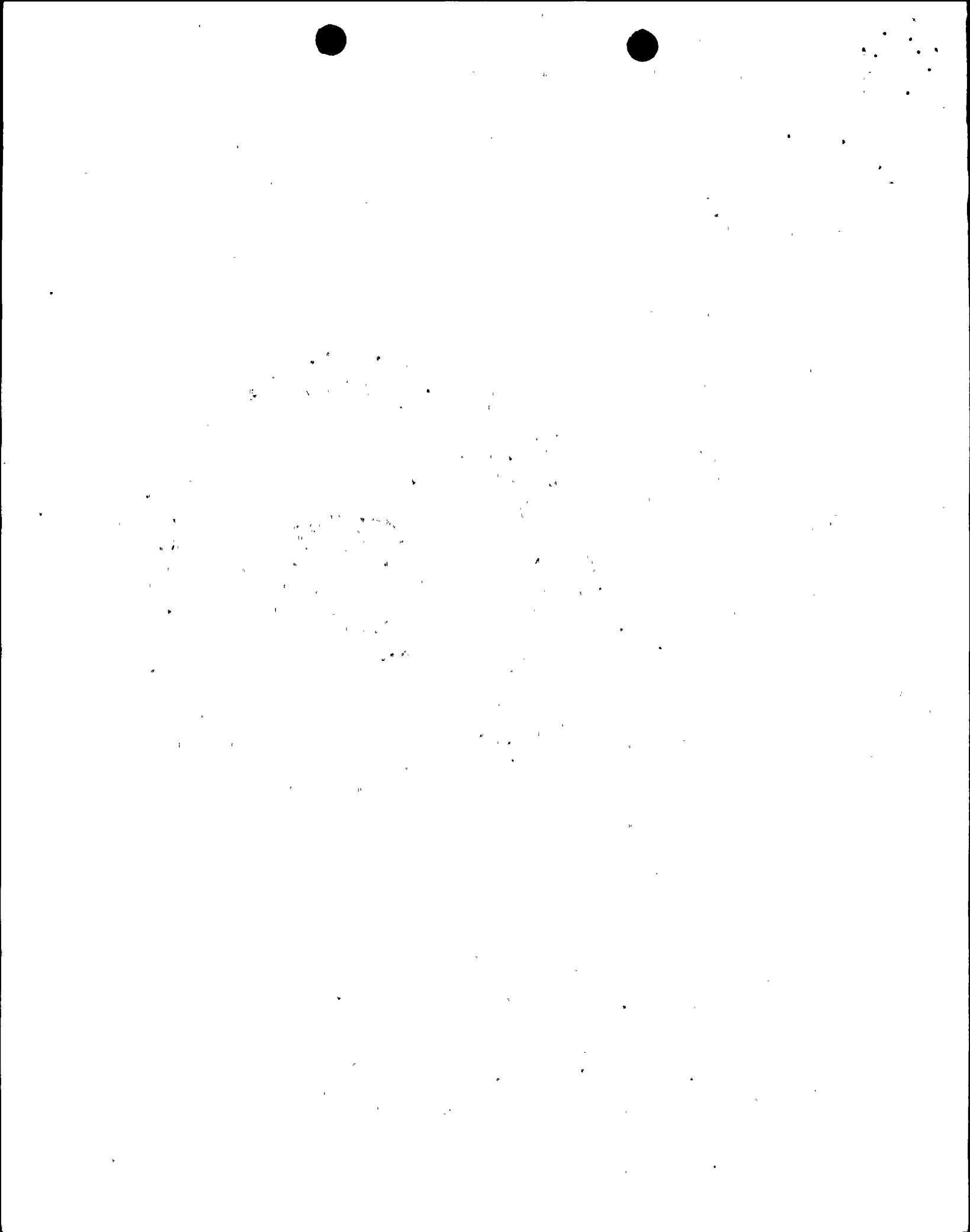
Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

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JAS/RLD

Attachments

cc: Regional Administrator, Region II, USNRC.

Senior Resident Inspector, USNRC, St. Lucie Plant.

Mr. W.A. Passetti, Florida Department of Health and Rehabilitative Services.

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STATE OF FLORIDA)
) ss.
COUNTY OF ST. LUCIE)

J. A. Stall being first duly sworn, deposes and says:

That he is Vice President, St. Lucie Plant, for the Nuclear Division of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.




J. A. Stall

STATE OF FLORIDA
COUNTY OF St. Lucie

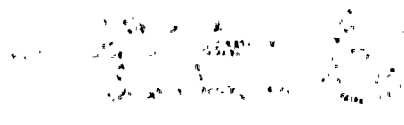
Sworn to and subscribed before me
this 3rd day of March, 1998
by J. A. Stall, who is personally known to me.



Signature of Notary Public-State of Florida

 Leslie J. Whitwell
MY COMMISSION # CC646183 EXPIRES
May 12, 2001
BONDED THRU TROY FARR INSURANCE, INC.

Name of Notary Public (Print, Type, or Stamp)



St. Lucie Unit 2
Docket No. 50-389
Proposed License Amendment
RCS Chemistry/Design Features/Administrative Controls

ATTACHMENT 1

EVALUATION OF PROPOSED TS CHANGES

EVALUATION OF PROPOSED TS CHANGES

Introduction

The proposed amendment to Facility Operating License NPF-16 for St. Lucie Unit 2 (PSL2) will revise the required plant conditions specified for applicability of Technical Specification (TS) 3.4.7, Reactor Coolant System (RCS) Chemistry, consistent with the corresponding TS for St. Lucie Unit 1. This change will obviate the burden and personnel radiation exposure associated with sampling the RCS for chloride and fluoride concentrations during low temperature, defueled conditions at PSL2, and which are the result of the existing requirement to comply with the subject TS "At all times." FPL has determined that routine sampling for these halides during plant conditions other than the operational MODES defined in the TS is not necessary.

In addition, administrative changes are proposed for : (a) TS 5.6.1.a.1, Design Features-Fuel Storage, Criticality, to more accurately reflect the total uncertainties previously approved for criticality analyses performed for the spent fuel storage pool, and (b) TS 6.5.2.9.d, Technical Review Responsibilities, to more accurately describe the recipients of detailed recommendations resulting from technical reviews performed under cognizance of the Company Nuclear Review Board (CNRB).

Proposed Changes: Description and Bases/Justification

- (1) TS 3.4.7: The reactor coolant system (RCS) chemistry Limiting Condition for Operation (LCO) is revised as follows:
 - (a) APPLICABILITY: Change "At all times" to read, "All MODES"
 - (b) ACTION: Change "At All Other Times" to read, "MODES 5 and 6"

Basis/Justification for Proposed Change

TS 3.4.7 provides RCS Chemistry limits to ensure that corrosion of the RCS is minimized over the life of the plant and thereby ensure structural integrity and a reduction in the potential for RCS leakage. Specifically, steady state and transient limits are established for oxygen, chloride, and fluoride concentrations in the reactor coolant to minimize corrosion of the zircaloy fuel cladding, austenitic stainless steel piping, and piping and components that are clad with stainless steel. The corrosive effects are time and

temperature dependent, and include pitting and stress corrosion cracking (SCC). The existing Specification is applicable "At all times" and requires sampling the RCS for dissolved oxygen, chloride, and fluoride concentrations at least 3 times per 7 days, except that the limits and sampling requirements for dissolved oxygen are waived when temperature is ≤ 250 °F. The surveillance requirements are established to assure that concentrations in excess of the limits will be detected in sufficient time to take corrective actions.

Chloride and fluoride are more aggressive corrosion agents than oxygen and excessive concentrations of these halides can cause damage to reactor components even at temperatures below 250 °F. Therefore, monitoring requirements as well as actions for concentrations above the specified limits are appropriate for plant operation in MODES 5 and 6. However, compliance with the literal meaning of the existing TS applicability statement requires continuation of RCS chemistry surveillance activities during certain refueling operations even when there is no fuel in the reactor vessel following full core off-load. Typically, coolant temperature in this defueled condition is less than 100 °F, the RCS is depressurized, systems that are necessary for circulation of reactor coolant to obtain a representative chemistry sample are not required to be OPERABLE, and if the RCS inventory has been drained to below the elevation of the reactor vessel flange and the Shutdown Cooling System is removed from service, sampling the coolant in the vessel is only possible by entering the reactor vessel area and manually dipping a sample container into the available inventory from the upper refueling cavity. This latter sampling method results in personnel radiation exposure that, otherwise, would not be incurred.

FPL has reviewed parameters associated with pitting and SCC of stainless steel and, for the limited periods of time and low temperatures associated with a full core off-load condition, has concluded the following: (1) at temperatures near ambient, pitting is unlikely to result from exposure to an aqueous solution containing a halide concentration of several orders of magnitude above the TS limits; and (2) SCC of 304/316 and associated L grades of stainless steel is not expected at temperatures near ambient with halide concentrations below 1 ppm, and an increase in concentration of several orders of magnitude above the limits at these temperatures would not significantly impact SCC susceptibility. Moreover, due to the large volume of contaminated coolant addition that would be required, it is unlikely that the chloride or fluoride concentrations could be significantly increased beyond the concentrations that existed during MODE 6 prior to the full core off-load. Based on the preceding discussion, FPL believes that routine sampling for chloride and fluoride concentrations is not necessary at St. Lucie Unit 2 during a defueled, low temperature plant condition.

The proposed LCO will remove the burden of monitoring RCS chloride and fluoride concentrations during a condition other than the operational MODES defined in the

Technical Specifications. In addition, the proposed changes will make the specification consistent with the corresponding TS for St. Lucie Unit 1.

- (2) TS 5.6.1.a.1: This Specification describes the overall uncertainties included in the criticality analysis (for unborated water) supporting the approved design of the spent fuel pool storage racks, and is revised as follows:

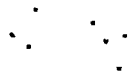
Change the phrase, "... which includes a conservative allowance of $.024 \Delta k_{\text{eff}}$ for Total Uncertainty" to read, "... which includes a conservative allowance of $.024 \Delta k_{\text{eff}}$ (Region I) and $.017 \Delta k_{\text{eff}}$ (Region II) for Total Uncertainty"

Basis/Justification for Proposed Change

TS 5.6.1.a provides certain requirements for Regions I and II of the spent fuel storage pool based on the design parameters that have been reviewed and approved for the spent fuel storage racks. Item 1 of the specification addresses the acceptance criteria and the total uncertainty associated with the calculated effective neutron multiplication factor (k_{eff}) for a hypothetical case considering the spent fuel storage racks flooded with unborated water. The existing Specification was issued with Facility Operating License Amendment No.7 (October 16, 1984) which authorized an increase in the storage capacity of the spent fuel pool to 1076 fuel assemblies.

In the criticality analysis performed for the case considering the fuel racks flooded with unborated water, an overall uncertainty of $.024$ and $.017$ was obtained for Regions I and II, respectively. These values, including their constituents and method of derivation, are documented in Attachment 1 to FPL letter L-84-219, FPL response to NRC Item No.5 (J.W. Williams (FPL) to J.R. Miller (NRC), Docket 50-389: Request for Additional Information, Spent Fuel Rack Submittal: August 29, 1984). The same uncertainty values are also documented in section 2.1.1, Analysis Methods, of the safety evaluation by the Office of Nuclear Reactor Regulation supporting Amendment No. 7 to Facility Operating License No. NPF-16, Docket 50-389.

The proposed revision to TS 5.6.1.a.1 is administrative in nature, and will ensure that the literal description of the total uncertainty associated with the criticality analysis (unborated) for the St. Lucie Unit 2 spent fuel storage racks is consistent with the previously approved values.



- (3) TS 6.5.2.9.d: The specification states that the technical review responsibilities under the cognizance of the CNRB shall encompass, "Making detailed recommendations through the Chairman-CNRB for revising ... " Revise this statement to read:

"Making detailed recommendations to the Chairman-CNRB and plant management for revising ... "

Basis/Justification for Proposed Change

TS 6.5.2.9 was established as part of Facility Operating License Amendment No. 69 (December 22, 1994) which authorized transfer of activities previously performed by an Independent Safety Engineering Group (ISEG) to the Quality Assurance Department. Recommendations resulting from the technical review activities performed pursuant to this specification are reported to the Chairman-CNRB and St. Lucie plant management to ensure that such recommendations are properly dispositioned. The proposed revision is editorial/administrative in nature, and ensures that the literal description of making detailed recommendations is consistent with the previously approved quality assurance process.

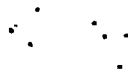
Conclusion

The proposed revision to TS 3.4.7 will eliminate the burden and personnel radiation exposure associated with monitoring RCS chloride and fluoride concentrations when the reactor is in a low temperature, defueled condition; and will remain consistent with the basis for this specification as well as the corresponding TS at St. Lucie Unit 1. The revisions proposed for TS 5.6.1.a.1 and TS 6.5.2.9.d are administrative changes that ensure the literal descriptions contained therein are consistent with the bases for previously approved license amendments.

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RCS Chemistry/Design Features/Administrative Controls

ATTACHMENT 2

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION



DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

Description of amendment request: The proposed amendment will revise the conditions specified for applicability of the reactor coolant system (RCS) chemistry requirements, Technical Specification (TS) 3.4.7, to eliminate the burden and personnel radiation exposures associated with monitoring RCS chloride and fluoride concentrations during low temperature, defueled plant conditions; and will implement administrative changes to TS 5.6.1.a.1, Design Features-Fuel Storage, Criticality, and Administrative Control 6.5.2.9.d, Technical Review Responsibilities, to ensure that literal descriptions contained therein are consistent with the bases for previously approved license amendments.

Pursuant to 10CFR50.92, a determination may be made that a proposed license amendment involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. Each standard is discussed as follows:

(1) Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change to TS 3.4.7 will replace the existing applicability statement of "At all times" with "All MODES." This revision will obviate the burden and personnel radiation exposures associated with sampling the RCS for chloride and fluoride concentrations during low temperature, defueled conditions. The existing limits, corrective actions for above limit conditions, and sampling requirements will be applicable for all operational MODES defined in the TS. The proposed applicability will continue to assure consistency with the bases for the RCS chemistry specification, and the potential for occurrence, initial conditions, or consequences of events considered in the safety analyses are not changed. The revisions proposed for TS 5.6.1.a.1 and 6.5.2.9.d are administrative in nature, and assure consistency with the bases for previously approved license amendments. Therefore, operation of the facility in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

(2) Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment will not change the physical plant or the operational MODES defined in the facility license. The changes do not involve the addition of new equipment or the modification of existing equipment, nor do they alter the design of St. Lucie plant systems. Therefore, operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

The proposed revision to TS 3.4.7 will not change the existing RCS chemistry requirements that are applicable to the operational MODES defined in the technical specifications. However, the change will allow the chloride and fluoride concentrations to go unmonitored during certain refueling operations when there is no fuel in the reactor vessel. For the limited time intervals associated with this defueled condition, the RCS is depressurized, coolant temperature is near ambient, it is unlikely that the chloride and fluoride concentrations could be significantly increased above the concentrations that existed during MODE 6 prior to the core off-load, and susceptibility to corrosive attack from these halides is, therefore, significantly reduced. The existing bases for the RCS chemistry limiting conditions for operation are not changed, and both the bases and the proposed specification are consistent with the corresponding TS at St. Lucie Unit 1. The proposed revisions to TS 5.6.1.a.1 and TS 6.5.2.9.d are administrative in nature and ensure that descriptions contained therein are consistent with the bases for previously approved license amendments. Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

Based on the discussion presented above and on the supporting Evaluation of Proposed TS Changes, FPL has concluded that this proposed license amendment involves no significant hazards consideration.