



December 23, 2002

L-2002-241
10 CFR 54

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

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Supplemental Response to NRC Requests for Additional Information for Review of
the St. Lucie Units 1 and 2 License Renewal Application

By letters dated September 26, 2002 (L-2002-157 and L-2002-166), and October 3, 2002 (L-2002-144), FPL provided responses to NRC Requests for Additional Information (RAIs) associated with the License Renewal Application (LRA) Section 3.0 Aging Management Reviews, LRA Appendix B - Aging Management Programs, and LRA Section 2.0 - Scoping and Screening, respectively. In addition, by letter dated November 27, 2002 (L-2002-222), FPL submitted supplemental responses for RAI responses which were identified by the NRC as requiring additional information, including RAIs 2.3.3-15 and B.3.2.8-3.

Based on a review of FPL's responses, the NRC has requested additional information regarding FPL's responses to RAIs 2.3.3-15 Scoping and Screening, 3.5-12 Aging Management Review, and B.3.2.8-3 Aging Management Programs. Accordingly, Attachment 1 to this letter contains the supplemental responses to these RAIs.

Should you have any further questions, please contact S. T. Hale at (772) 467-7430.

Very truly yours,

A large, stylized handwritten signature in black ink, appearing to read "D. E. Jernigan".

D. E. Jernigan
Vice President
St. Lucie Plant

DEJ/STH/hlo
Attachment

A089

St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389

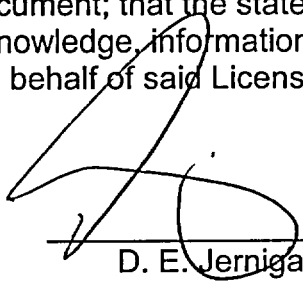
Supplemental Response to NRC Requests for Additional Information for Review of the St. Lucie Units 1 and 2 License Renewal Application.

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

D. E. Jernigan being first duly sworn, deposes and says:

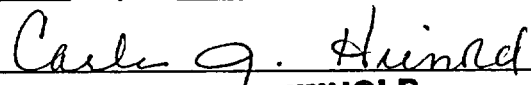
That he is Vice President – St. Lucie of Florida Power and Light Company, the Licensee herein;

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.

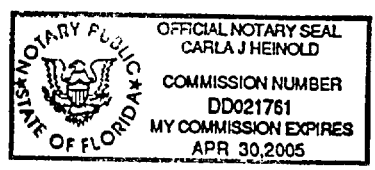


D. E. Jernigan

Subscribed and sworn to before me this
23 day of December, 2002.



CARLA J. HEINOLD



Name of Notary Public (Type or Print)

D. E. Jernigan is personally known to me.

cc: U.S. Nuclear Regulatory Commission, Washington, D.C.
Program Director, License Renewal & Environmental Impacts
Project Manager, St. Lucie License Renewal
Project Manager, St. Lucie

U.S. Nuclear Regulatory Commission, Region II
Regional Administrator, Region II, USNRC
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**ST. LUCIE UNITS 1 AND 2
DOCKET NOS. 50-335 AND 50-389
ATTACHMENT 1
SUPPLEMENTAL RESPONSE TO NRC REQUESTS FOR ADDITIONAL
INFORMATION FOR REVIEW OF THE ST. LUCIE UNITS 1 AND 2
LICENSE RENEWAL APPLICATION**

RAI 2.3.3 - 15

The license renewal rule, 10 CFR 50.54(a)(3), requires an applicant to include those structures, systems, and components (SSCs) that are relied on in a safety analysis or plant evaluation to perform a function which demonstrates compliance with 10 CFR 50.48, "Fire protection," to be included within the scope of the license. In general, operating licenses contain a license condition for fire protection that defines the 10 CFR 50.48 fire protection program. The license condition states that the licensee "shall implement and maintain in effect the provisions of the approved fire protection program" as described in the UFSAR and/or as approved in a safety analysis.

Comparing the applicable information contained in the LRA with the UFSAR, the staff identified SSCs in the UFSAR that were not included within the scope of license renewal. A sampling review by staff has identified the hydropneumatic tank and appurtenances (provides pressure maintenance for fire water system), and nitrogen tank for gaseous suppression system (pilot pressure for system actuation) that are included in the safety analysis, yet were not identified to be within the scope of license renewal.

Clarify the current licencing basis, consistent with 10 CFR 50.48, with respect to scoping for license renewal. Using the examples above, justify why SSCs listed in the UFSAR are considered to be outside the scope of license renewal.

FPL Response

The response below supercedes the response to RAI 2.3.3-15 transmitted in FPL letter L-2002-144 dated October 3, 2002 and supplemented by FPL letter L-2002-222 dated November 27, 2002. This response is being revised to address the Fire Protection Program for aging management of hydropneumatic tank components.

FPL's methodology for scoping pursuant to 10 CFR 50.54(a)(3) for fire protection for St. Lucie Units 1 and 2 is described in LRA Subsection 2.1.1.4.1 (page 2.1-7). This methodology calls for a review of the Current Licensing Bases (CLB) and other design documents down to the component level, and is the same as that utilized for Turkey Point Units 3 and 4 license renewal. This methodology has undergone two NRC scoping and screening audits as part of the Turkey Point Units 3 and 4 and St. Lucie Units 1 and 2 license renewal reviews with no issues identified. Additionally, the NRC regional scoping and screening inspection for Turkey Point Units 3 and 4 did not identify issues related to fire protection scoping. Finally, the NRC Region II inspection team reviewed the adequacy of fire protection scoping and screening during the recently completed scoping and screening inspection at St. Lucie Units 1 and 2, and no issues were identified. Based on the above, FPL is confident that all SSCs relied on in safety analyses or plant evaluations to demonstrate compliance with 10 CFR 50.48 have been identified as within the scope of license renewal. In a few cases, there are fire protection SSCs described in the St. Lucie Units 1 and 2 UFSARs that are not within the scope of license renewal. In these cases,

the SSCs are not relied on to demonstrate compliance with 10 CFR 50.48, but are described in the UFSAR typically for information purposes only.

Further discussion for the two specific examples in RAI 2.3.3–15 are provided below.

Hydropneumatic Tank

As stated in St. Lucie Unit 1 UFSAR Section 9.2.6.2 and Unit 2 UFSAR Section 9.2.4.2, the hydropneumatic tank is part of Potable and Sanitary Water (includes Service Water). As stated in both UFSARs, these systems serve no safety function since neither is required to achieve safe shutdown nor to mitigate the consequences of a design basis accident. Unit 1 UFSAR, Appendix 9.5A, makes the following statements with regard to the hydropneumatic tank:

Page 9.5A-46

“The entire fire suppression water supply system is maintained under pressure in the range of 95 to 125 psig by means of a hydropneumatic tank, pressurized by domestic water pumps. The fire pumps are designed for automatic starting when the fire main pressure drops to greater than or equal to 85 psig.”

Page 9.5A-109

“The use of the hydropneumatic tank for small makeup and the maintenance of a system pressure helps prevent frequent starting of the motor driven pump.”

“The fire water system, when not operating, is kept pressurized by a hydropneumatic tank. This tank pressure is maintained in the range of 95 to 125 psig by the domestic water pumps. If a manual or automatic water fire suppression system is actuated causing fire water system pressure to decrease both fire pumps start automatically when the header pressure drops to greater than or equal to 85 psig.”

“A timing device for sequential pump starts is not installed in accordance with NFPA-20, but the intent of NFPA-20 is met with the alternate configuration which incorporates a hydropneumatic tank to keep the system full of water to prevent water hammer, and is powered by separate electrical busses to prevent system electrical overload.”

Page 9.5A-114

“The sizing of the domestic water pumps and hydropneumatic tank is designed to keep the fire loop pressurized between 95 and 125 psig during normal operation.”

Similar statements are made in the Unit 2 UFSAR on pages 9.5A-45, 9.5A-105, and 9.5A-106.

The hydropneumatic tank was determined not to be in the scope of license renewal for the following reasons.

1. Although the hydropneumatic tank normally maintains pressure on the fire main, it is isolated by a check valve upon start of the fire pumps. Thus, the tank is not in service when Fire Protection is performing its system intended functions.
2. If the hydropneumatic tank were assumed not to be in service during normal operation, the fire pumps would start more frequently. This condition, although a maintenance consideration for the fire pumps, would not prevent Fire Protection from performing its system intended functions. Operability of the fire pumps is assured through periodic flow

testing in accordance with the Fire Protection Program. There is no requirement in the Units 1 and 2 UFSARs for a pressure maintenance system to satisfy fire protection requirements.

3. The statements with regard to NFPA-20 are related to requirements for automatic controls associated with sequential start of the fire pumps. The hydropneumatic tank is not credited in satisfying these NFPA-20 requirements, because the fire pumps will start when the fire main pressure drops to greater than or equal to 85 psig regardless of the condition of the hydropneumatic tank. St. Lucie Unit 1 (includes fire water supplies for both units) was designed to the 1972 version of NFPA-20, which does not require a pressure maintenance system.
4. The hydropneumatic tank is not included in the "fire protection plan" as defined in 10 CFR 50.48.

Based on the above, the hydropneumatic tank does not perform or support any system intended functions that satisfy the scoping criteria of 10 CFR 54.4(a), and thus is not within the scope of license renewal.

However, based upon the NRC reviewer's position and expectations conveyed at several meetings with the NRC, the hydropneumatic tank and a portion of Service Water required for pressure maintenance of the fire water system are added to the scope of license renewal. This includes the following:

1. Hydropneumatic tank and associated instrumentation, vents, drains, and other pressure boundary appurtenances
2. Domestic water pumps, suction lines from the city water storage tanks, and discharge lines to the hydropneumatic tank (Note: also includes pump recirculation lines up to orifices SO-15-4A and SO-15-4B)
3. The main service water header from the hydropneumatic tank to the fire water system check valve V15243 and its branch connections up to Valves V15237, PCV-15-11, V15186, and V15235

Although some of the boundaries established by the above components are not closed valves, these boundaries are considered acceptable for license renewal based upon continuous pressure monitoring of the system. The hydropneumatic tank contains a low pressure switch which initiates an alarm in the Control Room and at a local water treatment annunciator panel. Additionally, as part of the normal shift operator rounds, plant operators check the hydropneumatic tank and domestic water pumps for abnormal conditions in accordance with the operations department operating instructions. Therefore, any significant reduction in system pressure will be immediately detected and corrective actions initiated.

Table 3.3-6 is modified as follows:

LRA page 3.3-42 (Internal Environment)
LRA page 3.3-45 (External Environment)

**TABLE 3.3-6
FIRE PROTECTION**

Component/ Commodity Group [GALL Reference]	Intended Function	Material	Environment	Aging Effects Requiring Management	Program/Activity
Internal Environment					
Hydropneumatic tank	Pressure boundary	Carbon steel	Air/gas ¹ Raw water – city water	Loss of material	Fire Protection Program ²
Domestic water pumps	Pressure boundary	Carbon steel	Raw water – city water	Loss of material	Fire Protection Program ²
Site glasses	Pressure boundary	Glass	Air/gas	None	None Required
		Carbon steel	Raw water – city water	Loss of material	Fire Protection Program ²
Piping/fittings	Pressure boundary	Galvanized carbon steel	Raw water – city water	Loss of material	Fire Protection Program ²
External Environment					
Hydropneumatic tank	Pressure boundary	Carbon steel	Outdoor	Loss of material	Systems and Structures Monitoring Program
Domestic water pumps	Pressure boundary	Carbon steel	Outdoor	Loss of material	Systems and Structures Monitoring Program
Site glasses	Pressure boundary	Glass	Outdoor	None	None Required
		Carbon steel	Outdoor	Loss of material	Systems and Structures Monitoring Program
Piping/fittings	Pressure boundary	Carbon steel	Outdoor	Loss of material	Systems and Structures Monitoring Program
		Galvanized carbon steel	Outdoor	None	None required

NOTES

1. Potentially humid air due to water in lower portion of the tank.
2. Pressure monitoring

Nitrogen Tank

Unit 1 UFSAR Chapter 9.5A, Section 3.1.3, Page 9.5A-117 describes the nitrogen tank, as a small, vendor-supplied cartridge. This cartridge is in the scope of license renewal, and was inadvertently omitted from Table 3.3-6. Table 3.3-6 is modified as follows:

LRA page 3.3-42 (Internal Environment)

LRA page 3.3-45 (External Environment)

**TABLE 3.3-6
FIRE PROTECTION**

Component/ Commodity Group [GALL Reference]	Intended Function	Material	Environment	Aging Effects Requiring Management	Program Activity
Internal Environment					
Unit 1 Halon nitrogen tank [VII.1.1.1]	Pressure boundary	Carbon steel	Air/gas	None	None required
External Environment					
Unit 1 Halon nitrogen tank [VII.1.1.1]	Pressure boundary	Carbon steel	Indoor – not air conditioned	Loss of material	Fire Protection Program

RAI 3.5 - 12

In Section 3.5.1.3 of the LRA, the applicant concluded that masonry walls do not need aging management during the period of extended operation. However, cracking and degradation of masonry walls is a generic observation at nuclear power plants. NRC Information Notice 86-67, "Lessons Learned from Regional Inspections of Licensee Actions in Response to IE Bulletin 80-11," and the findings of walkdowns at the nuclear power plants included in the resolution of Unreviewed Safety Issue A-46, indicate that in-scope masonry walls need periodic inspections. Please provide information regarding the basis for not developing a masonry wall aging management program.

FPL Response

The response below supercedes the response to RAI 3.5-12 transmitted in FPL letter L-2002-157 dated September 26, 2002. This response is being revised to include the aging management program for concrete structures.

Cracking of unreinforced masonry block walls is an aging effect requiring management, as indicated in LRA Subsection 3.5.2.3.2 (page 3.5-26), Table 3.5-9 (page 3.5-68), and Table 3.5-12 (page 3.5-80).

Cracking of reinforced masonry block walls is not an aging effect requiring management, since the reinforcing steel effectively controls cracking thus preventing a loss of intended function. During IE Bulletin 80-11, "Masonry Wall Design," walkdowns, no significant cracking was identified. Furthermore, after many years of service, reinforced masonry block walls at St. Lucie have not exhibited cracking that could lead to a loss of intended function. For that reason, cracking of reinforced masonry block walls is not an aging effect requiring management.

However, based on specific direction from the NRC staff, license renewal applicants are required to implement an aging management program to manage aging of concrete structures. FPL proposes to credit the Systems and Structures Monitoring Program (LRA Appendix B Subsection 3.2.14 page B-57) for managing cracking of the accessible reinforced concrete masonry block walls listed in LRA Tables 3.5-2 and 3.5-12 (pages 3.5-43 and 3.5-80).

RAI B.3.2.8 - 3

Discuss your program for internal inspections of fire protection piping as stated in Chapter XI.M27, "Fire Water Systems," of the Gall report. Explain how the program will detect wall thinning due to internal corrosion. Opening the system results in introducing oxygen, that may contribute to the initiation of general corrosion. Explain why the use of non-intrusive means of measuring wall thickness, such as ultrasonic inspection, are not used to manage this aging effect.

FPL Response

The response below supercedes the response to RAI B.3.2.8-3 transmitted in FPL letter L-2002-166 dated September 26, 2002 and supplemented by FPL letter L-2002-222 dated November 27, 2002. This response is being revised to clarify that ultrasonic pipe wall thickness measurements were performed on stagnant portions of the Fire Water System.

As clarified in the above response to RAI B 3.2.8-1, the St. Lucie Fire Protection Program (LRA Appendix B Subsection 3.2.8, page B-39) is plant-specific. Fire Protection at St. Lucie is filled with water classified as "raw water – city water." As stated in LRA Appendix C, Section 4.1.2 (page C-7), this water is potable water. The water has been rough filtered to remove large particles. City water has been purified but conservatively classified as raw water for the purposes of aging management review. Internal conditions are monitored via leakage, flow, and pressure testing. Internal loss of material can be detected by changes in flow or pressure, leakage or by evidence of excessive corrosion products during flushing of the system. The following Fire Protection procedures are credited for aging management of internal conditions of the Fire Water System:

<u>TEST</u>	<u>FREQUENCY</u>
• Wet pipe sprinkler test	semi-annual
• Fire system flush	yearly
• D/G fire sprinkler system visual integrity exam	yearly
• D/G fire sprinkler system obstruction inspection	yearly
• D/G fire sprinkler system automatic valve operation	yearly
• D/G fire sprinkler system functional test	yearly
• RAB fire sprinkler system functional test	yearly
• Yard fire hydrant flow check	yearly
• Main transformer water spray test	18 month
• Auxiliary transformer water spray test	18 month
• H ₂ seal oil water spray test	18 month
• Turbine lube oil storage water spray test	18 month
• 3 year fire protection flow test	3 year
• Fire hose station flow check	3 year
• City Water Storage Tanks interior inspection	5 year

With regard to St. Lucie plant-specific operating experience, past inspections/overhauls of fire protection components normally exposed to water, such as fire water pumps, hydrants, post indicator and other valves, have not identified corrosion or degraded conditions of the internal surfaces of adjoining piping requiring corrective action.

During the recent implementation of Fire Water System modifications, ultrasonic pipe wall thickness measurements were taken on a stagnant portion of the system, which confirm the good internal condition of the fire main and its branches. These modifications were associated with enhancements identified prior to or during the 1998 NRC Fire Protection Functional Inspection, and included the addition of an automatic suppression system for Thermo-lag walls and the addition of new hose stations in the Reactor Auxiliary Building. Pipe wall thickness measurements were taken on 4 and 6 inch lines prior to welding and confirmed that minimal internal loss of material due to corrosion has taken place (i.e., the pipe wall thicknesses were approximately nominal). Thus, based upon the above, the current methods of monitoring internal conditions are adequate and reliable.

This position is consistent with that accepted by the NRC as part of the Turkey Point Units 3 and 4 LRA review.