June 19, 2002

LICENSEE : Florida Power and Light Company

FACILITY: St. Lucie Nuclear Station, Units 1 and 2

SUBJECT: TELECONFERENCING CALLS WITH FLORIDA POWER AND LIGHT COMPANY TO DISCUSS DRAFT REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE ST. LUCIE LICENSE RENEWAL APPLICATION

The NRC staff and representatives of the Florida Power and Light Company (FPL) held teleconferencing calls on May 28 and 29, 2002, to discuss draft requests for additional information (RAIs). FPL identified where requested information was available in the license renewal application or other docketed documents for some of the draft RAIs. A list of the participants in the May 28 and 29, 2002, teleconferencing calls are provided in attachment 1. The resolution or disposition of the draft RAIs, which the staff will not issue, is provided in attachment 2.

/***RA***/

Noel F. Dudley, Senior Project Manager
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

Attachments: 1. Participants in Teleconferencing Calls
2. Summary of Teleconferencing Calls

cc w/attachment: See next page

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ST. LUCIE PLANT

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May 28, 2002

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Florida Power and Light Company Participants

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Tony Menocal via telephone

May 29, 2002

Staff Participants

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Florida Power and Light Company Participants

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Attachment 1

SUMMARY OF TELECONFERENCING CALLS
FLORIDA POWER AND LIGHT COMPANY
ST. LUCIE UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
DRAFT REQUESTS FOR ADDITIONAL INFORMATION
MAY 28 and 29, 2002

The NRC staff and representatives of the Florida Power and Light Company (FPL) met on May 15-16, 2002, to discuss draft requests for additional information (RAIs) concerning the St. Lucie, Unit 1 and 2, license renewal application (LRA). During that meeting, the staff clarified the draft RAIs it had prepared. FPL identified where the requested information was available in the LRA or other docketed documents for some of these draft RAIs. The staff FPL continued their discussions of the draft RAIs during teleconferencing calls on May 28 and 29, 2002. The resolution or disposition of the draft RAIs that the staff will not issue is presented below.

RAI 3.3.1-3

The LRA stated that the average humidity in containment air environment is 73%. What is the highest humidity level one can expect in a containment air environment at the plant? Is there any applicable aging effect associated with that highest humidity level for the carbon steel bolting? The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

Disposition: This draft RAI was combined with other draft RAIs and issued as RAI 3.3 - 1.

RAI 3.3.4-4

Unit 2 includes strainers and filters in the fuel oil system to prevent detrimental effects of fuel oil tank bottom sediment on diesel performance. Provide justification for not including the strainers and filters in Table 3.3-4. In addition, provide operating history of the strainers and filters including the interval of replacement of the filters.

Resolution: Information requested by the staff is contained in Appendix C of the LRA. On page C-16, the applicant states that:

> Fouling evaluated for St. Lucie includes macrofouling (macro-organisms, grass, etc.), and particulate fouling due to precipitation or corrosion products. Fouling is not considered an aging effect for components with an intended function of filtration (e.g., a strainer). In these cases, the component is designed to foul, and the short-term effect is addressed by normal system operating practices.

RAI 3.3.4-8

Components including carbon steel piping/fitting, valves, drain trap, air accumulation vessel, filter, and muffler in the starting air and intake system exposed to the internal environment of moisture air may have loss of material as an applicable aging effect in the starting air and intake system exposed the internal environment of moisture air. Discuss why these

components are not included in the LRA or included in the LRA but requiring no aging management review.

Disposition: This draft RAI requests the same information as RAI 3.3.4 -1 and will not be issued.

RAI 3.3.5-4

Pending the response of the applicant to RAIs 3.3.5-1 and 3.3.5-2, if some aging effects (such as loss of materials) requiring aging management are applicable to the embedded/encased piping/fitting components of the emergency cooling canal system, describe what would be the applicable AMP(s).

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAIs 3.3.5-1 and 3.3.5-2. If the applicant in its responses to draft RAIs 3.3.5-1 and 3.3.5-2 justifies that the postulated aging effects do not require management, then this draft RAI is irrelevant. If the applicant in its responses to draft RAIs 3.3.5-1 and 3.3.5-2 determines that the postulated aging effects do require management, then the applicant is required to complete an aging management review of the aging effects including identification of appropriate aging management programs.

RAI 3.3.6-3

Lube oil could contain contaminants and/or moisture. GALL Report recommends one-time inspection for the reactor coolant pump oil collection tank to ensure loss of material does not occur. Please provide justification for not including one time inspection for the reactor coolant pump oil collection tanks in the AMP.

Resolution: The information requested by the staff is contained in Section 3.3.3, “Operating Exerience,” and Table 3.3-6 of the LRA. On page 3.3-9 of the LRA, the applicant indicates that it reviewed NRC Information Notice 94-58, “Reactor Coolant Pump Lube Oil Fire,” as part of its review of industry operating history. On page 3.3-10, the applicant indicates that its review of plant-specific operating experience identified no aging effects that required management. In Table 3.3-6, “Fire Protection,” on pages 3.3-42, the applicant states that an aging management program for the internals environment of the tanks is not required.

RAI 3.3.8-1

The applicant is requested to provide information about whether any portion of the instrument air compressor cooler shell is internally exposed to the moist air/gas environment. If so, provide the corresponding aging effects for the shell. Also, provide AMPs for managing these effects.

Resolution: The information requested by the staff is contained in Table 3.3-8, “Instrument Air,” of the LRA. The applicant stated that the channel head of the compressor cooler shell is evaluated as piping/fittings. On page 3.3-53, the staff indicates that piping/fittings that are exposed to a wetted air/gas environment require aging management by the Periodic Surveillance and Preventive Maintenance Program and the Galvanic Corrosion Susceptibility Inspection Program.

RAI 3.3.8-2

All the carbon steel components in the instrument air system are externally exposed to indoor-not air conditioned, outdoor or containment air environment. The applicant has identified loss of material as an applicable aging effect for all these components, except carbon steel bolting. The applicant is requested to explain this apparent discrepancy.

Disposition: This draft RAI was combined with other draft RAIs and issued as RAI 3.3 - 1.

RAI 3.3.8-6

The Systems and Structures Monitoring Program provides for visual inspection and examination of accessible surfaces of carbon steel, plastic and rubber components externally exposed to indoor-not air conditioned, outdoor, or containment air environment for managing loss of material and cracking. The applicant is requested to provide information about whether there are any inaccessible surfaces of instrument air system carbon steel, plastic and rubber components exposed to indoor-not air conditioned, outdoor, or containment air environment. If so, will the program be enhanced to manage aging effects for these inaccessible surfaces during the extended period of operation?

Resolution: Information requested by the staff is contained in Section 3.3.1, "Materials and Environments," of the LRA. On pages 3.3-4 and 3.3-5, the applicant states:

> The only parts of systems or components considered to be inaccessible for inspection are those that are buried or embedded/enclosed in concrete. These environments are addressed as part of the aging management review process; see Table 3.0.2, "External Service Environments."

RAI 3.3.9-7

As mentioned earlier, components in the intake cooling water system are made of several different materials including carbon steel and stainless steel. Therefore, there is a potential for loss of material due to galvanic corrosion. The applicant, however, does not propose use of the Galvanic Corrosion Susceptibility Inspection program, which is described in Section 3.1.2 of Appendix B to the LRA, for managing loss of material due to galvanic corrosion. The applicant is requested to provide information about whether the components in the intake cooling water system are susceptible to galvanic corrosion. If so, then describe how the resulting loss of material will be managed.

Resolution: Information requested by the staff is contained in Section B.3.1.2 of the LRA. On page B-12, the applicant states that the Galvanic Corrosion Susceptibility Inspection Program consists of a confirmatory one-time inspection of piping to verify that loss of material due to galvanic corrosion is not occurring. Since galvanic corrosion is expected in the intake cooling water system, the applicant uses other aging management programs to manage the galvanic corrosion.

RAI 3.3.9-8

The Intake Cooling Water System Inspection Program provides for visual inspection and examination of accessible surfaces for managing loss of material and cracking. The applicant is requested to provide information about whether there are any inaccessible surfaces of the intake cooling water system carbon steel, cast iron and fiberglass components exposed to indoor-not air conditioned or outdoor environment. If so, will the program be enhanced to manage aging effects for these inaccessible surfaces during the extended period of operation?

Resolution: Information requested by the staff is contained in Section 3.3.1, "Materials and Environments," of the LRA. On pages 3.3-4 and 3.3-5, the applicant states:

> The only parts of systems or components considered to be inaccessible for inspection are those that are buried or embedded/enclosed in concrete. These environments are addressed as part of the aging management review process; see Table 3.0.2, "External Service Environments."

RAI 3.3.10-1

Corrosion of carbon steel component could occur at low points of the system due to moisture condensation, especially for the carbon dioxide subsystem in the presence of moisture. Is the miscellaneous bulk gas supply system examined for condensation at low points of the distribution system? If yes, please provide specifics of the inspection/examination procedures. If not, please provide the justification for not monitoring condensation in the system.

Resolution: Information requested by the staff is contained Table 3.3-5, "Miscellaneous Bulk Gas Supply," and Appendix C of the LRA. On page C-8, the applicant states that where wetted conditions are detected to exist (e.g., due to condensation), the environment description is amended accordingly, and potential aging effects are addressed. On page 3.3-65, the license indicates that there have been no detected wetted conditions in miscellaneous bulk gas supply systems.

RAI 3.3.11-10

Basing on RAI 3.3.11-1 and pending the response of the applicant if hardening is a possible aging degradation of the rubber expansion joints (Unit 2 only), discuss what will be the applicable AMP.

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAI 3.3.11-1. If the applicant in its response to draft RAI 3.3.11-1 justifies that the postulated aging effect does not require management, then this draft RAI is irrelevant. If the applicant in its response to draft RAI 3.3.11-1 determines that the postulated aging effect does require management, then the applicant is required to complete an aging management review of the aging effect including identification of appropriate aging management programs.

RAI 3.3.11-11

Pending the response of the applicant to RAIs, 3.3.11-4, 5, and 6, if some aging effects (such as loss of materials) requiring aging management are applicable to the embedded/encased

piping/fitting components of the primary makeup water system, discuss what will be the applicable AMP(s).

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAIs 3.3.11-4, 5, and 6. If the applicant in its responses to draft RAIs 3.3.11-4, 5, and 6 justifies that the postulated aging effects do not require management, then this draft RAI is irrelevant. If the applicant in its responses to draft RAIs 3.3.11-4, 5, and 6 determines that the postulated aging effects do require management, then the applicant is required to complete an aging management review of the aging effects including identification of appropriate aging management programs.

RAI 3.3.11-12

Basing on RAIs 3.3.11-8 and -9, and pending the responses of the applicant, if some aging effects (such as loss of materials) requiring aging management is applicable to the copper alloy components of the primary makeup water system in the containment air and indoor-not air conditioned environments, discuss what will be the applicable AMP(s).

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAIs 3.3.11-8 and 3.3.11-9. If the applicant in its responses to draft RAIs 3.3.11-8 and 3.3.11-9 justifies that the postulated aging effects do not require management, then this draft RAI is irrelevant. If the applicant in its responses to draft RAIs 3.3.11-8 and 3.3.11-9 determines that the postulated aging effects do require management, then the applicant is required to complete an aging management review of the aging effects including identification of appropriate aging management programs.

RAI 3.3.12-1

The major components in the sampling system consist of valves, tubing/fittings, vessels, and heat exchanger. The valves and tubing/fitting are subject to aging management review. Please explain why vessels and heat exchanger are not subject to aging management review.

Resolution: Information requested by the staff is contained in the License Renewal Boundary Drawings. On License Renewal Boundary Drawing 1-SAMP-01 and 2-SAMP-01, the applicant indicates that the sample vessels and heat exchanger are not safety related and, therefore, are not within the scope of license renewal.

RAI 3.3.14-4

Basing on RAI 3.3.14-1and pending the responses of the applicant if some aging effects (such as loss of materials) requiring aging management are applicable to that the instrument air compressor cooling water head tank of Turbine Cooling water (Unit 1 only) system in the internal air/gas environment, discuss what will be the applicable AMP(s).

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAI 3.3.14-1. If the applicant in its response to draft RAI 3.3.14-1 justifies that the postulated aging effects do not require management, then this draft RAI is irrelevant. If the applicant in its response to draft RAI 3.3.14-1 determines that the postulated aging effects do require management, then

the applicant is required to complete an aging management review of the aging effects including identification of appropriate aging management programs.

RAI 3.3.14-5

Basing on RAI 3.3.14-2 and pending the responses of the applicant if some aging effects (such as loss of materials) requiring aging management are applicable to the brass tubes and carbon steel bolting components of turbine cooling water (Unit 1 only) system in the internal air/gas environment, discuss what will be the applicable AMP(s).

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAI 3.3.14-2. If the applicant in its response to draft RAI 3.3.14-2 justifies that the postulated aging effects do not require management, then this draft RAI is irrelevant. If the applicant in its response to draft RAI 3.3.14-2 determines that the postulated aging effects do require management, then the applicant is required to complete an aging management review of the aging effects including identification of appropriate aging management programs.

RAI 3.3.14-6

Basing on RAI 3.3.14-3 and pending the responses of the applicant if some aging effects (such as loss of materials) requiring aging management are applicable to the carbon steel components of turbine cooling water (Unit 1 only) system in the internal air/gas environment (or in an borated water leaks environment), discuss what will be the applicable AMP.

Disposition: The staff will not issue this draft RAI since it is redundant to draft RAI 3.3.14-3. If the applicant in its response to draft RAI 3.3.14-3 justifies that the postulated aging effects do not require management, then this draft RAI is irrelevant. If the applicant in its response to draft RAIs 3.3.14-3 determines that the postulated aging effects do require management, then the applicant is required to complete an aging management review of the aging effects including identification of appropriate aging management programs.

RAI 3.3.15-5

The applicant is requested to provide information about whether there are any inaccessible locations on the affected carbon steel components and flexible connections. If so, describe how the aging effects of loss of material (on the outside surface) and cracking at those locations will be managed.

Resolution: Information requested by the staff is contained in Section 3.3.1, “Materials and Environments,” of the LRA. On pages 3.3-4 and 3.3-5, the applicant states:

> The only parts of systems or components considered to be inaccessible for inspection are those that are buried or embedded/enclosed in concrete. These environments are addressed as part of the aging management review process; see Table 3.0.2, “External Service Environments.”

RAI 3.3.16-2

Please provide justification for not identify fouling as an applicable aging effect for the SS drain pipe exposed to the internal environment of raw water (drains).

Resolution: Information requested by the staff is contained in Appendix C of the LRA. On page C-16, the applicant states that:

> Fouling evaluated for St. Lucie includes macrofouling (macro-organisms, grass, etc.), and particulate fouling due to precipitation or corrosion products. Fouling is not considered an aging effect for components with an intended function of filtration (e.g., a strainer). In these cases, the component is designed to foul, and the short-term effect is addressed by normal system operating practices.

<u>3.3.16-3</u>

The strainer elements are exposed to internal environment of air/gas. The intended function of the strainer elements is filtration. Please provide justification for not identify fouling as an applicable aging effect for the strainer elements.

Resolution: Information requested by the staff is contained in Appendix C of the LRA. On page C-16, the applicant states that:

> Fouling evaluated for St. Lucie includes macrofouling (macro-organisms, grass, etc.), and particulate fouling due to precipitation or corrosion products. Fouling is not considered an aging effect for components with an intended function of filtration (e.g., a strainer). In these cases, the component is designed to foul, and the short-term effect is addressed by normal system operating practices.

<u>RAI 3.3.16-4</u>

The outdoor environment at St. Lucie contains moist, salt-laden atmospheric air, with temperature at 27°F-93°F, 73% average humidity, and exposure to weather, including precipitation and wind. Therefore, the outdoors environment also contains chlorides and moisture. Are the issues raised in RAI 3.3.11-4 applicable for the fire protection components in embedded/encased environment? If so, discuss what will be the applicable AMPs. If not please provide the basis.

Disposition: This draft RAI was combined with the other draft RAIs and issued as RAI 3.3 - 3.

<u>RAI 4.4-1</u>

The St. Lucie LRA indicates that the 60-year normal operating radiation doses is based on radiation zone maps. The St. Lucie LRA also states that the 60-year normal operating radiation dose is based on continuous operation for 60-years with 1% failed fuel. Clarify how the 60 year normal operating radiation doses at the component location are established/calculated based on 1% failed fuel and the location of the component.

Resolution: Information requested by the staff is contained in Section 4.4, “Environmental Qualification of Electrical Equipment, “ of the LRA and Section 3.11.4, “Qualification of Components,” of the Unit 2 updated Final Safety Analysis Report (UFSAR). On page 4.4-2 of

the LRA, the applicant states that with regards to radiation, Environmental Qualification is based on area radiation dose rate values for continuous normal operation with 1% failed fuel. On page 4.4-6, the applicant states that Radiation Zone Maps provide the 60-year normal operating dose and the 1 day, 30 day, and 1 year design basis accident doses. The total integrated dose is determined by adding the 60-year normal operating dose to the appropriate accident dose for the specific location of the component. On page 3.11-4 of the USFAR, the applicant states that Radiation Zone Maps indicate the normal and abnormal values associated with specific areas of the plant.

RAI 4.4-2

Describe how information obtained from the radiation monitoring system is utilized to assure that a component's normal operating EQ radiation design limit (i.e., the limit to which the component has been shown to be qualified by test for expected dose during normal plant operation) will not be exceeded. Define the acceptance criteria (i.e., the radiation dose rate) that will initiate the corrective action process so that the effect of radiation on a component's qualification (i.e., qualified life) is addressed and resolved. Describe the extent to which margin included to demonstrate qualification for accident dose rates has been utilized to assure that changes in the normal dose will be identified long before a component exceeds its qualified dose for normal operation.

Resolution: Information requested by the staff is contained in Section 4.4, "Environmental Qualification of Electrical Equipment," of the LRA. On page 4.4-3, the applicant states that to ensure that monitoring radiation levels are bounding for the service environment for EQ components, the high alarm set point of the radiation monitors is much less than the value used for normal containment dose rates in EQ calculations. The applicant also states that radiation monitoring surveys of areas outside the containment are performed at least month. The fact that the accident doses are typically 10 to 100 times greater than normal operating doses, assures that any change in the normal dose will be identified long before a component exceeds its qualification dose.

RAI 4.4-4

Describe how information obtained from temperature monitoring is utilized to assure that a component's normal operating EQ temperature design limit (i.e., the limit to which the component has been shown to be qualified by test for expected temperature during normal plant operation) will not be exceeded. Define the acceptance criteria (i.e., the maximum temperature) that will initiate the corrective action process so that the effect of the higher then normal temperature on a component's qualification (i.e., qualified life) is addressed and resolved. Describe the extent to which margin included to demonstrate qualification for accident temperature conditions has been utilized to assure that changes in the normal temperature will be identified long before a component exceeds its qualified temperature for normal operation.

Resolution: Information requested by the staff is contained in Section 4.5, "Environmental Qualification of Electrical Equipment." On page 4.4-2 and 4.4-3, the applicant states that the temperature for service conditions in the EQ analysis is 120°F inside the Containments. Containment temperatures are required, by technical specifications, to be maintained below 115°F. The average air temperature inside the Containments is calculated by averaging three

of the four containment fan cooler inlet temperature detectors for Unit 1 and the two containment air temperature detectors for Unit 2.

The temperature for service conditions in the EQ analysis is 104°F outside the Containments. The applicant states that annual mean temperature for the site is between 72.5°F and 75°F and that the qualified life based on the actual average temperature is more than double the life used by the St. Lucie EQ analyses. This, combined with feedback through FPL's Corrective Action Program from operator walkdowns as part of their daily rounds, and maintenance and system engineering personnel assures that changes in the pant environment or unexpected degradation of an EQ component is identified prior to the component exceeding its qualified life.

RAI 4.4-5

Components on the EQ list that are located in the Auxiliary Buildings are only required to be qualified for harsh radiation environments. The qualified life calculations for these components located in the Auxiliary Buildings is based on a continuous maximum temperature of 104°F. For these components, explain how the component's normal operating temperature will be maintained below the continuous maximum temperature of 104°F to which the component has been shown to be qualified.

Resolution: Information requested by the staff is contained in Section 4.4, "Environmental Qualification of Electrical Equipment," and Section 2.3.3.15, "Ventilation," of the LRA. On page 4.4-3, the applicant states that annual mean temperature for the site is between 72.5°F and 75°F. On page 2.3-25, the applicant states that reactor auxiliary building ventilation subsystems are designed to limit the temperature to an ambient of 104°F in the equipment areas with an outside temperature of 92°F.

RAI 4.4-6

Explain/clarify why, when the Arrhenius method as applied, the qualified life of a component subject to an average temperature X°F with temperatures ranging between (X - a)°F and (X+b)°F can be considered the same as the qualified life of a component subject to a continuous temperature X°F. Explain how localized heating from sources other then ohmic heating are accounted for in the Arrhenius method when average room temperatures are used.

Resolution: Information requested by the staff is contained in Section 4.4, "Environmental Qualification of Electrical Equipment." On page 4.4-3, the applicant states that:

> The Unit 1 (temperature) detectors are at the same level as the EQ components inside the Containment. Since the aging calculations for Unit 1 assume a continuous temperature of 120°F, take into account self-heating, and do not credit seasonal and shutdown temperature reductions, significant margin exists to ensure that the qualified life of the EQ components inside containment is not exceeded.