June 21, 2002

LICENSEE: Florida Power and Light Company (FPL)

SUBJECT: SUMMARY OF MAY 15 AND 16, 2002, MEETING WITH FLORIDA POWER AND LIGHT COMPANY CONCERNING POTENTIAL REQUESTS FOR ADDITIONAL INFORMATION (RAIs) REGARDING THE ST. LUCIE, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION

On May 15 and 16, 2002, representatives of Florida Power and Light Company (FPL) met with the Nuclear Regulatory Commission staff to discuss draft requests for additional information (RAIs) concerning the St. Lucie, Units 1 and 2, license renewal application. The areas discussed were as follows:

- Section 2.0 Structures and Components Subject to an Aging Management Review
- Section 2.1 Scoping and Screening Methodology
- Section 2.3 System Scoping and Screening Results - Mechanical Systems
- Section 2.4 Scoping and Screening Results - Structures
- Section 2.5 Scoping and Screening Results -Electrical
- Section 3.2 Aging Management Review Results - Engineered Safety Features System
- Section 4.1 Identification of Time Limited Aging Analysis
- Section 4.3 Metal Fatigue
- Section 4.5 Metal Containment and Penetration Fatigue
- Appendix B Aging Management Programs

The meeting was useful in clarifying the intent of staff's draft RAIs. Several of the draft RAIs were resolved or disposed, while the balance were formally sent to the applicant as RAIs. The resolution of draft RAIs was based on information available in the application or in other docketed material. In some cases, several draft RAIs that addressed different aspects of the same issue were consolidated into a single RAI, which was issued to the applicant. Attachment 1 is a list of attendees and Attachment 2 provides the basis for the resolution or disposition of the draft RAIs.

/***RA***/

Jack Cushing, Project Manager
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs

Docket Nos. 50-335 and 50-389

Attachments: As Stated

cc w/attachments: See next page

LICENSEE: Florida Power and Light Company (FPL)

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Jack Cushing, Project Manager
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs

Docket Nos. 50-335 and 50-389
Attachments: As Stated
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NAME	JCushing*	NDudley*	EGHylton*	SLee
DATE	6/12/02	6/ 12/02	6/13/02	6/21/02

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D. Thatcher
G. Galletti
C. Li
J. Moore
R. Weisman
M. Mayfield
A. Murphy
W. McDowell
S. Droggitis
T. Kobetz
RLEP Staff

R. McIntyre
R. Young
Y. Li
C. Munson

Division of Regulatory Improvement Programs
COVER PAGE

DATE: June 7, 2002

SUBJECT: SUMMARY OF MAY 15 AND 16, 2002, MEETING WITH FLORIDA POWER AND LIGHT COMPANY CONCERNING POTENTIAL REQUESTS FOR ADDITIONAL INFORMATION (RAIs) REGARDING THE ST. LUCIE, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION

ORIGINATOR: J. Cushing

SECRETARY: S. Chey

●●●**DRIP ROUTING LIST**●●●		
	NAME	DATE
1.	J. Cushing	6/ 12 /02
2.	N. Dudley	6/ 12 /02
3.	E. Hylton	6/ 13 /02
4.	S. Hoffman	6/ /02

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ADAMS ACCESSION NUMBER: DATE ENTERED: / /02

FORM 665 ATTACHED and filled out: **YES** **NO**

Mr. J. A. Stall
Florida Power and Light Company

ST. LUCIE PLANT

cc:
Mr. J. A. Stall
Senior Vice President, Nuclear and Chief Nuclear Officer
Florida Power and Light Company
700 Universe Boulevard
P.O. Box 029100
Juno Beach, FL 33408-0420

Senior Resident Inspector
St. Lucie Plant
U.S. Nuclear Regulatory Commission
P.O. Box 6090
Jensen Beach, Florida 34957-2000

Mr. Craig Fugate, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

M. S. Ross, Attorney
Florida Power and Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Douglas Anderson
County Administrator
St. Lucie County
2300 Virginia Avenue
Fort Pierce, Florida 34982

Mr. William A. Passetti, Chief
Department of Health
Bureau of Radiation Control
2020 Capital Circle, SE, Bin #C21
Tallahassee, Florida 32399-1741

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Mr. Donald E. Jernigan, Site Vice President
St. Lucie Nuclear Plant
Florida Power and Light Company
6351 South Ocean Drive
Jensen Beach, Florida 34957-2000

Mr. Steve Hale
St. Lucie Nuclear Plant
Florida Power and Light Company
6351 South Ocean Drive
Jensen Beach, Florida 34957-2000

Mr. R. G. West
Plant General Manager
St. Lucie Nuclear Plant
Florida Power and Light Company
6351 South Ocean Drive
Jensen Beach, Florida 34957-2000

Mr. T.L. Patterson
Licensing Manager
St. Lucie Nuclear Plant
Florida Power and Light Company
6351 South Ocean Drive
Jensen Beach, Florida 34957-2000

Mr. Don Mothena
Manager, Nuclear Plant Support Services
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Rajiv S. Kundalkar
Vice President - Nuclear Engineering
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. J. Kammel
Radiological Emergency Planning Administrator
Department of Public Safety
6000 SE. Tower Drive
Stuart, Florida 34997

Mr. Alan P. Nelson
Nuclear Energy Institute
1776 I Street, N.W., Suite 400
Washington, DC 20006-3708
APN@NEI.ORG

David Lewis
Shaw Pittman, LLP
2300 N Street, N.W.
Washington, D.C. 20037

Mr. Stan Smilan
5866 Bay Hill Circle
Lake Worth, FL 33463

Mark P. Oncavage
12200 SW 110th Avenue
Miami, FL 33176

NRC PUBLIC MEETING ATTENDANCE LIST
Clarify Contents of Application of License Renewal for St. Lucie
May 15 and 16, 2002

Name	**Organization**
Noel Dudley	NRC
Jack Cushing	NRC
Steve Hale	Florida Power and Light (FPL)
Tony Menocal	FPL
Bruce Beisel	FPL via telephone
Hans Asher	NRC
David Jeng	NRC
Cliff Munson	NRC
Duc Nguyen	NRC
Jai Rajan	NRC
Rene LI	NRC
Stewart Bailey	NRC
Richard McIntyre	NRC
J. S. Goel	NRC
M. Razzague	NRC
Ron Young	NRC
Arnold Lee	NRC
Mark Hartzman	NRC
John Fair	NRC
Bennet Gitnick	ISL
Spyros Traiforos	ISL
Dan Prelewicz	ISL
Shi-Wing Tam	ANL via telephone
Vic Shaw	ANL via telephone
David Ma	ANL via telephone

Attachment 1

MEETING WITH FLORIDA POWER AND LIGHT COMPANY

Attachment 2

POTENTIAL REQUESTS FOR ADDITIONAL INFORMATION
REGARDING ST. LUCIE UNITS 1 AND 2
LICENSE RENEWAL APPLICATION

MAY 15-16, 2002

During the May 15-16, 2002 meeting with Florida Power and Light Company (FPL), the staff clarified the draft requests for additional information (RAIs) it had prepared for the St. Lucie, Unit 1 and 2, license renewal application (LRA). For some of the draft requests for additional information, FPL identified where the requested information could be located in the LRA or docketed documents. The following draft RAIs were resolved or disposed during the meeting and will not be issued.

RAI 2.3.1 - 4

Borated water leakage through the pressure boundary in PWRs, and resulting borated water induced wastage of carbon steel is a potential aging degradation for the components. Reactor vessel head lifting lugs are considered to be such components requiring aging management. However, if the components are currently covered under Boric Acid Wastage Surveillance Program, then it may not require additional aging management. It appears that the subject components were not discussed in the license renewal application (LRA), and therefore, the staff requests the applicant to verify whether the components are within the surveillance program; and if not, to provide an explanation.

Resolution: The information requested by the staff is contained in Figure 5.4-1 of the Updated Final Safety Analysis Report (UFSAR) for Unit 1 and in Figure 5.3-8 of the UFSAR for Unit 2. The reactor vessel head lifting lugs are welded to the reactor vessel head and are considered an integral part of the head. As an integral part of the head, the lifting lugs are covered under the Boric Acid Wastage Surveillance Program.

RAI 2.3.1 - 5

As stated in Sections. 2.3.1 and 3.1.4.3.2, the Unit 1 thermal shield was permanently removed in 1983 due to damage. The staff has noted that an evaluation for the reactor vessel internals component stresses were performed by the applicant without the thermal shield, and it was reported in the LRA that the results were found to be within the limits of the ASME Boiler and Pressure Vessel Code, Sec. III, Subsection NG, 1972 Draft Edition. The staff also understands that one of the intended functions of thermal shield is to minimize irradiation induced degradation of the reactor pressure vessel and internals. The staff, therefore, requests the applicant to indicate whether an analysis was done to determine any impact of removing the thermal shield on the time-limited aging analyses (TLAAs) performed for the reactor vessel and any internals, including, any impact on reactor vessel radiation embrittlement calculations. If an analysis was performed, then the applicant should submit its result; and if not, then the applicant should justify why such analysis is unnecessary.

Resolution: The information requested by the staff is available in the associated TLAAs and aging management program of the LRA. In Section 4.2, “Reactor Vessel Neutron Embrittlement,” of the LRA, the applicant describes a group of TLAAs concerning the effects of irradiation embrittlement on St. Lucie, Units 1 and 2, reactor vessels over the period of extended operation. Under the current licensing basis, the effects of the irradiation embrittlement of reactor vessel internals is managed by the aging management program described in Appendix B 3.3.12, “Reactor Vessel Internals Program,” of the LRA.

RAI 2.3.1 - 6

It is stated in the FSAR (page 5.5-19 / Unit 1) that a RCP lube oil collection system is provided for each pump which will prevent a lube oil fire from propagating or damaging any safe shutdown equipment. The system consists of collection pans, drain piping and a collection tank, all of which are seismically supported. Drain lines are prevented from coming in contact with hot reactor coolant piping. It appears from the staff’s review of the LRA that the subject system and its components have not been identified as within the scope of license renewal, and therefore, the staff requests the applicant to provide an aging management review (AMR) for the subject components, pursuant to 10 CFR 54.4(a)(3).

Resolution: The information requested by the staff is available in Section 2.3.3.6 and in Table 3.3.6 of the LRA. In Section 2.3.3.6 of the LRA, the applicant states that fire protection components subject to an aging management review include enclosures (reactor coolant pump oil collection). In Table 3.3-6 on page 3.3-45 of the LRA, the applicant documents the results of the aging management review performed for the reactor coolant pump oil collection tanks. The aging management programs identified for the tanks are the Systems and Structure Monitoring Program and the Boric Acid Wastage Surveillance Program.

RAI 2.3.1 - 7

It was stated in page 2.3-7 of the LRA that the RCP flywheel is not subject to an AMR, and the staff concurs with the applicant’s position. However, the staff understands that a TLAA is required to be performed for the component for the extended period of operation. The staff has failed to identify a TLAA for the subject component in the LRA (Chapter 4). Please explain why.

Disposition: This draft RAI will not be sent to the applicant. The information requested is the same as the information requested by an RAI that will be issue for Section 4.1, “Identification of TLAAs,” of the LRA.

RAI 2.3.3 - 1

LRA Table 3.3-1 and license renewal drawings, 1-CVCS-04 and 2-CVCS-03 (locations D2 and D3 on both drawings), show that the boric acid makeup tanks are in the scope of license renewal. LRA Table 3.3-1 states that these tanks have a pressure boundary intended function. Some of the piping connected to the boric acid makeup tanks is shown on the drawings as not being within the scope of license renewal. This includes piping to the gas collection header and to closed valves V2124 and V2135. The staff believes that these piping sections also form part of the same pressure boundary as the boric acid makeup tanks. Please revise Table 3.3-1 and the referenced license renewal drawings to indicate that these piping and valve body components are in the scope of license renewal and subject to an AMR, or justify their exclusion.

Resolution: The information requested by the staff is available in the license renewal boundary drawings and the UFSAR. The piping is located at the top of the boric acid makeup tanks and are not pressurized. The piping is above the minimum level of water required by technical specifications. The license renewal drawings indicate that the piping is classified as

Quality Group D. On page 3.2-3 of the St. Lucie Unit 2 UFSAR, the applicant states that Quality Group D applies to those components not related to nuclear safety.

RAI 2.3.3 - 2

LRA Table 3.3-1 and license renewal drawings, 1-CVCS-04 and 2-CVCS-03 show that sections of piping between the boric acid makeup tank and the charging pump suction are within the scope of license renewal. This piping is part of the makeup system which performs the intended function of injecting concentrated boric acid into the reactor coolant system (RCS) for reactivity control. For Unit 1 (Drawing 1-CVCS-04) there is a section of piping (location G6) between normally open valve FCV-2161 and normally closed valve FCV-2210Y that is shown as not within the scope of license renewal. A similar section of piping for Unit 2, shown on Drawing 2-CVCS-03 location F6, is shown as within the scope of license renewal. The staff believes that the piping section for Unit 1 forms part of the makeup system pressure boundary and is within the scope of license renewal. Please revise Table 3.3-1 and the referenced license renewal drawings to indicate that the subject piping and valve body components are in the scope of license renewal and subject to an AMR, or justify their exclusion.

Resolution: The information requested by the staff is available in the license renewal boundary drawings prepared by the applicant. Boundary drawing 1-CVCS-04 indicates that Unit 1 has an air operated valve that fails closed (FCV-2161) and serves as the pressure boundary. Alternatively, boundary drawing 2-CVCS-3 indicates that Unit 2 has a manual valve at the same location and, therefore, the pressure boundary extends to the next air operated valve (FCV-2210Y).

RAI 2.3.2.2 - 1

In order to provide a reasonable assurance that the structures, components and intended functions of the containment spray system have been properly specified, the staff needs clarification of terms used to describe this system in the LRA:

1. The internal environment section of LRA Table 3.2-2 (page 3.2-14) lists a “NaOH Tank rupture disc (Unit 1 only)” component/commodity group that does not appear in the external environment section of that table. However, a “Rupture disc” component/commodity group is listed in the external environment section of Table 3.2-2 (page 3.2-19) that does not have a corresponding internal environment entry. Clarify whether these two entries refer to opposite sides of the same component(s).

2. The external environment section of LRA Table 3.2-2 (page 3.2-19) lists a “Pipe/fittings” component/commodity group with an environment identified as “Outdoor (ECCS pipe tunnel).” However, LRA Figure 2.2-2 “Yard Structures” (page 2.2-8) does not show any pipe tunnels, but does show two concrete pipe trenches running from the condensate storage tank enclosure to the turbine buildings for each unit. Clarify whether the “Pipe/fittings” components run in a tunnel or in a trench. If these components do run in a tunnel, identify the location of this tunnel relative to the structures shown on LRA Figure 2.2-2.

Resolution: This RAI will not be issued to the applicant. For item 1, the applicant confirmed that the two entries refer to opposite sides of the same component. For item 2, the difference between tunnels and trenches is the same question contained in draft RAI 3.3.11-3, which will be issued to the applicant.

RAI 2.4.1.1.2-1

Containment and shield building penetrations are shown on the license renewal drawings of multiple systems and discussed in several LRA sections (including mechanical penetrations, containment cooling, containment spray, containment isolation, safety injection, CVCS, component cooling water, instrument air, sampling, ventilation, main steam, feedwater, auxiliary feedwater). Because of the large number of license renewal drawings and LRA sections that discuss penetrations, the staff is unable to determine with a reasonable assurance that all of the containment and shield building penetrations shown in FSAR Table 6.2-16 (for Unit 1) and Table 6.2-52 (for Unit 2) are within the scope of license renewal. Verify that all containment and shield building penetrations are within the scope of license renewal and subject to an AMR, or identify and justify the exclusions.

Resolution: The information requested by the staff is available on page 2.3-11 of the LRA. On page 2.3-11 of the LRA, the applicant states that "all containment penetrations and associated containment isolation valves and components that ensure containment integrity, regardless of where they are described, require an aging management review."

RAI 2.4.1.1.5-1

General arrangement drawing 8770-G-065 (Unit 1 FSAR Figure 1.2-8) shows that the fuel transfer tube is shielded with lead shot (at location C15). Lead shielding is also shown in the vicinity of the refueling cavity in general arrangement drawing 2998-G-065 (Unit 2 FSAR Figure 1.2-8) at location C16. However, none of the component/commodity groups listed in LRA Table 3.5-2 identify components composed of lead or lead shot materials. These shielding components made of lead and lead shot materials may have a safety-related intended function and if so should be in the scope of license renewal and subject to an AMR. Please include these components in Table 3.5-2, or justify their exclusion.

Resolution: The information requested by the staff is available in the UFSARs. In Section 12.3.1.5 of the Unit 1 UFSAR and Section 12.3.1.6 of the Unit 2 UFSAR, the licensee identifies the lead shielding as being installed for the purpose of personnel protection.

RAI 2.4.2.15 - 1

LRA Section 2.4.2.15 states: "The Yard Structures are described in Unit 1 FSAR Sections 2.4.5.3.2 and 8.3.1.1.9." However, there is no Section 2.4.5.3.2 in the FSAR for Unit 1. There exists a FSAR Section 2.4.5.3, "Surge Sources;" Section 2.4.5.3 discusses assumptions for the probable maximum hurricane and does not discuss yard structures. Provide the correct reference for this section of the LRA.

Resolution: The information requested by the staff is available in these UFSAR sections. In Section 2.4.5.7 of the UFSAR for Unit 1 and Section 2.4.5.3.2 of the UFSAR for Unit 2, the applicant states that there is no need to provide stop log flood protection for any safety related structures.

RAI 3.3.1-1

In Table 3.3-1 on chemical volume and control system (CVCS) of the LRA treated water (other) is listed as an environment that may give rise to aging effects. In Appendix C (C-7) of the LRA chemical volume and control is not included as a system that has the treated water (other) as an applicable environment. Please explain the difference.

Resolution: The information requested by the staff is available in Table 3.3-1 and Appendix C of the LRA. In Table 3.3-1 of the LRA, the applicant identifies the letdown heat exchanger as being exposed to treated water (other) and treated water (borated). In Appendix C of the LRA, the applicant identifies the CVCS system as being exposed to treated water (borated). In Table 3.3-1 the applicant discusses a component and in Appendix C the applicant discusses a system.

RAI 3.3.2-6

In Section 5.2, "Cracking," of Appendix C to the LRA, the applicant states that the stainless steel piping externally exposed to marine environment (e.g., outdoor environment for component cooling water (CCW) system) is susceptible to transgranular stress corrosion cracking (TGSCC). However, in Table 3.3-2 of the LRA, the applicant does not identify cracking as an applicable aging effect for the stainless steel CCW components exposed to external outdoor environment. The applicant is requested to provide the bases for excluding cracking as an applicable aging effect for the CCW stainless steel components exposed externally to outdoor environment.

Disposition: Draft RAI 3.3.1-4 and draft RAI 3.3.2-6 address the differences between the effects of outdoor environments on stainless steel components and the effect of the outdoor environment on stainless steel piping in the emergency core cooling system pipe tunnel. These draft RAIs will be combined and issued as RAI 3.3.1 - 2.

RAI 3.3.2 - 2

(a) In Appendix C, Section 4.1.1, the applicant states that the carbon steel components exposed to treated water are immune from erosion/corrosion flow-accelerated corrosion (FAC) because the water is non-corrosive. This relevance of the non-corrosive water to FAC is not clear to the staff. Therefore, the applicant is requested to provide data for the following parameters for treated water that affect FAC: oxygen content, pH level, and flow velocities in component cooling water.

(b) The extremely low oxygen content in the treated water, discussed in RAI 3.3.2-1, would make the carbon steel components susceptible to FAC. EPRI TR-107396 (see Appendix B, P. B-3 of this EPRI report), "Closed Cooling Water Chemistry Guideline," also states that carbon steel piping and fittings in CCW system are susceptible to FAC. In addition, as mentioned in Section 3.1.3 of Appendix B, the Unit 2 carbon steel control room air conditioning CCW return piping, which is downstream of throttle valves, is exposed to high flow velocities of treated water. Such wall thinning is supported by the field experience described in Information Notice 91-18, in which carbon steel located downstream of a flow orifice experienced wall thinning due to flow accelerated corrosion and ruptured. The applicant is requested to justify why the control room air conditioning CCW return piping and other carbon steel piping in the CCW system are not susceptible to FAC. Specifically, include the response with the data for flow velocity, oxygen content and pH level in treated water.

Resolution: The information requested by the staff is available in Appendix C, "Process for Identifying Aging Effects Requiring Management for Non-Class 1 Components. Only components that operate in environments greater than 140 F are susceptible to FAC. The CCW system operates at temperatures below 140 F. 0n pages C-12 and 13 of the LRA, the applicant identifies the systems that are susceptible to FAC and the CCW system is not included.

RAI 3.3.2 - 12

Stress corrosion cracking has been observed during the metallurgical examination of component cooling water heat exchanger tubes at Turkey Point plants. Explain why the component cooling water heat exchanger tubes at St. Lucie plants are not susceptible to similar cracking

Disposition: Draft RAI 3.3.2 - 4 and draft RAI 3.3.2 - 12 address stress corrosion cracking of component cooling water heat exchanger tubes exposed to raw water. These draft RAIs will be combined and issued as RAI 3.3.2 - 3.

RAI 3.3.4-5

Are there any underground piping and components in the diesel generators and support systems that are managed by the Galvanic Corrosion Susceptibility Inspection AMP and subject to inspections?

Resolution: The information requested by the staff is available in the license renewal boundary drawings provided by the applicant. On boundary drawing 1-EDG-01, the applicant indicates that the underground fuel oil piping is protected by guard pipes, which eliminate the possibility of galvanic corrosion.

RAI 3.3.7-1

In Table 3.3-7 of the LRA, the applicant noted that heat transfer is not a license renewal intended function for the Unit 1 spent fuel pool heat exchangers (Section 2.3.3.7 of the LRA). Is this because of the differences in the safety-related means through which decay heat is removed from the fuel pool in Unit 1 and Unit 2, in particular with Unit 1 not relying on forced circulation through the heat exchanger? If not, please provide more specifics.

Resolution: The information requested by the staff is available on page 2.3-19 of the LRA. In Section 2.3.3.7, "Fuel Pool Cooling," of the LRA on page 2.3-19, the applicant states that the safety-related means of fuel pool cooling for Unit 1 is pool boil off and system makeup from intake cooling water without forced circulation through the heat exchange. The safety-related means of fuel pool cooling for Unit 2 is recirculation through the fuel pool heat exchangers.

RAI 3.4.3

Provide your justification for excluding aging management review of feedwater pump casing, and blowdown heat exchanger shell that have pressure-retaining function and are not replaced based on qualified life or specified time period. It is not clear why these components are not within the scope of license renewal.

Resolution: The information requested by the staff is available on page 3.4-1 of the LRA. On page 3.4-1, the applicant states:

> The following components/commodity groups identified in the GALL Report do not require an aging management review for St. Lucie Units 1 and 2 for the reasons noted.
>
> Feedwater Pumps (VIII D1.3) - These components do not perform or support any license renewal system intended functions that satisfy the scoping criteria of 10 CFR 54.4 and therefore are not within the scope of license renewal.
>
> Blowdown Heat Exchangers (VIII F.4) - These components do not perform or support any license renewal system intended functions that satisfy the scoping criteria of 10 CFR 54.4 and therefore are not within the scope of license renewal.

The applicant's aging management review of the feedwater pumps and blowdown heat exchangers intended functions is consistent with GALL.

<u>RAI 3.4.7</u>

Tables 3.4.1 and 3.5.2 list the aging effects in main steam and feedwater systems requiring management and the applicable programs and activities that manage the aging effects. Provide your justification for not considering cumulative fatigue damage as an aging effect for components in these systems.

Resolution: The information requested by the staff is available on pages 3.1-33 and 4.3-4 of the LRA. On page 3.1-33, the applicant states:

> Industry operating experience has shown steam generator feedwater nozzles to be susceptible to cracking due to fatigue. Since this particular failure mechanism has been experienced, aging management of fatigue cracking of the steam generator feedwater nozzle is required for the period of extended operation. The ASME Section XI, Subsections IWB, IWC, and IWD Inservice Inspection Program provides assurance that cracking due to fatigue is managed and that the intended function of the steam generator feedwater nozzles is maintained consistent with the St. Lucie Units 1 and 2 CLBs for the period of extended operation.

On page 4.3-4, the applicant states:

> Under current plant operating practices, piping systems within the scope of license renewal are generally only occasionally subjected to cycle operation. Typically these systems are subjected to continuous steady-state operation and operating temperatures vary only during plant heatup and cooldown, during plant transients, or for periodic testing. The results of the calculations determined that, except for the Reactor Coolant System hot leg sample piping on each Unit, components will not exceed 7000 equivalent full temperature thermal cycles during the period of extended operation. Therefore, the current piping analyses remain valid for the period of extended operation.

RAI 3.5-7

Given the potential for clogging of the recirculation sump screens, provide past operating experience with clogging from peeling paint or other debris. In addition, discuss any aging management programs used for ensuring the effectiveness of protective coatings during the period of extended operation.

Disposition: This RAI will be forwarded to the regional inspection team.

RAI 3.5-8

With respect to Section 3.5.2.2.1 of the LRA, indicate if the Unit 2 spent fuel storage racks contain any boron impregnated polymer or Boraflex equivalent material that is subject to aging from exposure to the spent fuel pool borated water. If so, discuss the aging management program for the Boraflex equivalent material utilized in the Unit 2 spent fuel storage racks.

Resolution: The information requested by the staff is available on page 3.5-21 of the LRA. On page 3.5-21, the applicant states that:

> Steel in fluid structural components are constructed of carbon steel or stainless steel. In addition, the Unit 1 spent fuel storage racks contain Boraflex panels.

The applicant confirmed that the reason for not identifying Boraflex in Unit 2 spent fuel storage racks is because the Boraflex panels are only used in the Unit 1 spent fuel pool storage racks.

RAI 3.5-11

In identifying the intended functions (column 2) of concrete components in Table 3.5-2, the applicant lumps the shield building surrounding the primary containment vessel together with other above ground-water concrete components. Section 6.2.1.1 of the Final Safety Analysis Report (FSAR)-Amendment 17 describes its function as: "The shield building provides shielding, controlled release of the annulus atmosphere under accident condition, and environmental protection for the containment vessel." In Section 6.2.1.2 of the FSAR, the shield building has been characterized as medium leakage structure. Please provide justification as why the intended function 1 (Table 3.5-1) is not applicable to the shield building.

Resolution: The information requested by the staff is available on pages 3.5-34 and 3.5-43 of the LRA. In Table 3.5-1 on page 3.5-34, the applicant identifies the possible intended functions of structural components. In Table 3.5-1 on page 3.5-43, the applicant indicates that the shield building provides a boundary for safety-related ventilation (Function 9), but does not provide a pressure boundary (Function 1).

RAI 4.6.3-1

Section 4.6.3 of the LRA describes the St. Lucie Unit 1 core support barrel repair. Provide a drawing showing a typical damaged lug area, the four crack arrestor holes, and the expandable plugs. State the material of the expandable plugs.

Resolution: The information requested by the staff is available on page 6.2-10 and Figures 5.3-2 to 5.4-35 of the applicant's final report concerning the core barrel repair. The applicant sent a letter to the U.S. Nuclear Regulatory Commission on February 10, 1984, forwarding a final report, “Reactor Vessel Internals and Thermal Shield, Plant Recovery Program Final Integrity and Stability of Internals – Conclusions and Findings.” Figures 5.3-2 to 5.4-35 in the report provide details of the support barrel repair. On page 6.2-10 of the report, the applicant states that the plugs are fabricated from Type 316 austenitic steel.

RAI 4.6.3-2

Provide detailed information regarding the design of the expandable plugs and how these are pre-loaded against the core support barrel (CSB).

Resolution: The information requested by the staff is available in Chapter 6.2 of the applicant’s final report concerning the core barrel repair. The applicant sent a letter to the U.S. Nuclear Regulatory Commission on February 10, 1984, forwarding a final report, “Reactor Vessel Internals and Thermal Shield, Plant Recovery Program Final Integrity and Stability of Internals – Conclusions and Findings.” Chapter 6.2 of the report, describes the design and thermal and hydraulic considerations associated with the core support barrel expandible plug repair.

RAI B 3.2.2.2-1

The staff considers the GALL program X1.S1 as the containment condition monitoring program, and XI.S4 as the containment leakage monitoring program. Both programs are needed to ensure the intended functions of the containment as identified in Table 3.5-2 of the LRA. However, the applicant states that for St. Lucie, Units 1 and 2, leak rate testing in accordance with 10 CFR 50, Appendix J, is included as Category E-P in the ASME Section XI, Subsection IWE Inservice Inspection Program. It is not clear whether the applicant plans to implement all attributes of GALL program XI.S4. Describe how you plan to implement the GALL program XI.S4 during the period of extended operation.

Resolution: The information requested by the staff is available on pages B-26 and B-27 of the LRA. On pages B-26 and B-27, the applicant states the following:

> The ASME Section XI, Subsection IWE Inservice Inspection Program is consistent with the ten attributes of Aging Management Programs XI.S1, "ASME Section XI, Subsection IWE," and XI.S4, "10 CFR Part 50, Appendix J," specified in the GALL Report [Reference B-2]. For St. Lucie Units 1 and 2, leak rate testing in accordance with 10 CFR 50, Appendix J, is included as Category E-P in the ASME Section XI, Subsection IWE Inservice Inspection Program. The currently applicable ASME code years for the ASME Section XI, Subsection IWE Inservice Inspection Program are identified in FPL Letters L-98-14, dated February 2, 1998, for Unit 1 [Reference B-7], and L-2000-227, dated November 13, 2000, for Unit 2 [Reference B-10].
>
> Based upon the above, the continued implementation of the ASME Section XI, Subsection IWE Inservice Inspection Program will provide reasonable assurance that the systems and components within the scope of license renewal will perform their intended functions consistent with the St. Lucie Units 1 and 2 CLBs for the period of extended operation.

RAI B 3.2.2.2-2

Subsection IWE of Section XI of the ASME Code does not provide acceptance criterion for the extent of corrosion of the containment shell, except that it sets a 10% criterion for initiating an engineering evaluation. The "operating experience" described in the LRA indicates that the St. Lucie Unit 2 containment was subjected to corrosion on the inside and outside surfaces of the containment. Provide information related to the acceptance criteria established when you initiate root cause determination and corrective action.

Disposition: This RAI will be provided to the regional inspection team.

RAI B 3.2.8-1

In accordance with the Gall Report (NUREG 1801, ChapterX1.M26, M27), the scope of the Fire Protection Program should include penetration seals, fire barrier walls, ceilings, floors, and all fire rated doors (automatic and manual) that perform a fire barrier function. It should also include management of the aging effects or the intended function of the fuel supply line. Verify whether or not these items are included. If they are not included, then provide justification for their exclusion.

Resolution: The information requested by the staff is available in the Table 3.5-8 of the LRA. In Table 3.5-8 beginning on page 3.5-60, the applicant provides the result of aging management reviews for mechanical penetrations, fire sealed isolation joints, cable tray penetrations, and fire doors. The applicant notes that concrete and steel structural components that serve as fire barriers are addressed with each structure.

RAI B 3.2.8-2

It is stated in Section B 3.2.8, "Preventive Actions," of the LRA that Mechanical Fire Protection System components are periodically flushed, performance tested, and inspected, and that coatings are not credited for eliminating aging effects. However, there is no discussion of the hazards analysis to assess the potential of fire hazard in all plant areas as required in the Gall Report . Verify whether or not a hazards analysis in accordance with the Gall Report has been performed and updated at St. Lucie, Units 1 and 2.

Resolution: The information requested by the staff is available is on page 2.1-7 of the LRA. On page 2.1-7, the applicant states that the Safe Shutdown Analyses provide the results of detailed design reviews utilizing the fire hazards analysis concept.

DRAFT RAIs CONCERNING DEGRADATION OF CARBON STEEL BOLTING

There are 15 draft RAIs that addressed aging management reviews for degradation of carbon steel bolts in various systems and environments. These draft RAIs have been combined into the following RAI that will be issued to the applicant.

> RAI 3.3 - 1: For carbon steel, bronze, and copper bolting in the following systems and for the environments to which they are exposed, justify why the aging effects that includes loss of material and cracking are excluded. Include the bounding humidity level for the outdoor and indoor not air conditioned

environment and containment environment. The systems are component cooling water, diesel generator, intake cooling water, primary water makeup system, service water system, turbine cooling water (Unit 1 only), ventilation system, sampling system and steam and power conversion system.

Disposition: The following draft RAIs have been combined in RAI 3.3 - 1 and will not be issued.

<u>RAI 3.3.2-7</u>

The applicant has identified loss of material as an aging effect for all carbon steel components except bolting exposed externally to outdoor environment. The applicant is requested to provide bases for excluding loss of material as an aging effect for carbon steel bolting exposed externally to outdoor environment.

<u>RAI 3.3.2-8</u>

The applicant has identified loss of material as an aging effect for all carbon steel components except bolting exposed externally to not air-conditioned environment. The applicant is requested to provide bases for excluding loss of material as an aging effect for carbon steel bolting exposed externally to not air-conditioned environment.

<u>RAI 3.3.2-9</u>

The applicant has identified loss of material as an aging effect for all carbon steel components except bolting exposed externally to containment air environment. The applicant is requested to provide bases for excluding loss of material as an aging effect for carbon steel bolting exposed externally to containment air environment.

<u>RAI 3.3.4-6</u>

Why bolting in the diesel generator support systems exposed to outdoor or indoor environments does not require aging management review? The applicant stated in the Systems and Structures Monitoring AMP that inspection includes welding and bolting.

<u>RAI 3.3.9-1</u>

Several carbon steel components in the intake cooling water system are externally exposed to indoor-not air conditioned, outdoor, raw water or buried environment. The applicant has identified loss of material as an applicable aging effect for all of these components except for carbon steel bolting. The applicant is requested to explain why loss of material is not an applicable aging effect for carbon steel bolting exposed to indoor-not air conditioned, outdoor, or buried environment.

<u>RAI 3.3.9-4</u>

Several stainless steel components in the intake cooling water system are externally exposed to indoor-not air-conditioned environment. These components include pump and valve bodies, piping/fittings, tubing/fittings and mechanical closure bolting. The applicant has identified loss of material as an applicable aging effect for only the pump bodies and not for any other stainless steel component. The applicant is requested to explain why loss of material is not an applicable aging effect for the other stainless steel components externally exposed to indoor-not air-conditioned environment.

RAI 3.3.11-4

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. Evaporation/condensation may result in high concentration of chlorides in localized regions of the surfaces of the steel components. This may lead to attacks and disruption of the protective film formed on the surfaces of the stainless steel. Once some particular region of the protective film is destroyed localized corrosion of the steel begins through an electrochemical process. Corrosion through a similar chloride-based process is also applicable for carbon steel components. The applicable aging effects are loss of materials and loss of mechanical closure integrity. The applicant has stated that no aging effects for SS components and CS bolting in the primary makeup water system associated with exposure to an outdoor environment are identified in Table 3.3-11.

RAI 3.3.11-8

The LRA stated that the average humidity in the indoor- not air conditioned environment is 73%. What is the bounding humidity level one can expect in an indoor- not air conditioned 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.

RAI 3.3.11-9

The LRA stated that the average humidity in containment air environment is 73%. What is the bounding 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.

RAI 3.3.12-2

The LRA stated that the average humidity in the indoor (not air-conditioned) and containment air environment is 73%. What is the highest humidity level one can expect in a containment air or indoor (not air-conditioned) 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.

RAI 3.3.13-1

The applicant stated that the outdoor environment is characterized by moist atmosphere air. Please provide justification for not identifying loss of material due to corrosion as an applicable aging effect for the carbon steel bolt exposed to outdoor environment.

RAI 3.3.14-2

The LRA stated that the average humidity in the indoor- not air conditioned environment is 73%. What is the bounding humidity level one can expect in an indoor- not air conditioned environment at the plant? Is there any applicable aging effect associated with that highest humidity level for brass tubes and carbon steel bolting? The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

RAI 3.3.15-2

The applicant has identified loss of material as an applicable aging effect for all the carbon steel components (e.g., valves and piping/fitting) externally exposed to indoor-not air conditioned environment except for carbon steel bolting exposed to the same environment. The applicant is requested to explain this discrepancy.

RAI 3.3.15-3

The applicant has identified loss of mechanical closure integrity, which includes loss of material, cracking, and loss of preload, as an applicable aging effect for the carbon steel bolting externally exposed to borated water leaks in all the ventilation system subsystems except one. In the reactor auxiliary building main supply and exhaust subsystem, loss of material instead of loss of mechanical closure integrity has been identified as an applicable aging effect for carbon steel bolting. The applicant is requested to explain this discrepancy.

RAI 3.4.2

In Tables 3.4-1 and 3.4-2 for carbon steel bolting, explain why the effect of humidity in the external environment is not considered to cause aging that leads to loss of material due to general corrosion and loss of preload.

DRAFT RAIs CONCERNING BORON LEAKAGE

There are five draft RAIs that concern aging management reviews for systems subject to degradation due to boron leakage. These draft RAIs have been consolidated into the following RAI that will be issued to the applicant.

> RAI 3.3 - 2 : Recent experience with extensive wastage of the vessel head due to boric acid corrosion (BAC) at the David Bessie Nuclear Power Plant suggests the seriousness of BAC (NRC Information Notice 2002-11: Recent Experience With Degradation Of Reactor Pressure Vessel Head, March 12, 2002). The applicant is requested to clarify whether the components listed below are likely to be externally exposed to borated coolant leaking from an adjacent system or component containing borated coolant.

- CCW system- the carbon steel surge tanks, pump bodies and heat exchanger shells
- demineralized makeup water system- any component

- instrument air system- carbon and galvanized steel components such as instrument air receivers, bolting, dryers, and compressor cooler shells
- intake cooling water system - carbon steel components i.e. basket strainers and valve bodies
- turbine cooling water (Unit 1 only) system -carbon steel components

Disposition: The following draft RAIs have been combined in RAI 3.3 - 2 and will not be issued.

RAI 3.3.2-10

The applicant is requested to clarify whether the carbon steel surge tanks, pump bodies and heat exchanger shells in the CCW system are likely to be externally exposed to borated coolant leaking from an adjacent system or component containing borated coolant. If so, then provide an aging management program to manage loss of material that these components may experience due to their exposure to leaking borated coolant.

RAI 3.3.3-1

The applicant is requested to clarify whether any component of the demineralized makeup water system is likely to be externally exposed to the borated water leakage from an adjacent system or component containing borated water. If so, then provide an aging management program to manage loss of material that these components may experience due to their exposure to leaking borated water.

RAI 3.3.8-3

The applicable aging effect for several carbon steel and galvanized carbon steel components in the instrument air system externally exposed to leaking borated coolant is loss of material. In the case of bolting it is loss of mechanical closure integrity. The applicant is requested to provide information about whether the other carbon steel components such as instrument air receivers, dryers, and compressor cooler shells are likely to be exposed to leaking borated coolant from an adjacent system or component containing borated coolant. If so, then provide an aging management program to manage loss of material that these components may experience due to their exposure to leaking borated coolant.

RAI 3.3.9-2

The applicant is requested to provide information about whether the carbon steel components, i.e., basket strainers and valve bodies, in the intake cooling water system are likely to be exposed to borated water leaking from an adjacent system or component containing borated water. If so, then provide an aging management program to manage loss of material that these components may experience due to their exposure to leaking borated water.

RAI 3.3.14-3

The applicant is requested to clarify whether any of the carbon steel components in the turbine cooling water (Unit 1 only) system (even though they themselves may not contain any borated water component) exposed to an indoor- not air conditioned external environment are adjacent to other components that may exhibit dripping leaking borated water. If so, is borated water leakage an applicable environment for these components? Recent experience with extensive wastage of the vessel head due to boric acid corrosion (BAC) at the David Bessie Nuclear Power Plant suggests the seriousness of BAC (NRC INFORMATION NOTICE 2002-11: Recent Experience With Degradation Of Reactor Pressure Vessel Head, March 12, 2002). Even though the SCs that are involved in the incident are not related to the turbine cooling water system (Unit 1 only) one needs to ascertain that the carbon steel components are not exposed to leaking borated fluids from components that are either adjacent or in sufficiently close proximity. The applicant is requested to address this concern.

DRAFT RAIs CONCERNING AGING MANAGEMENT REVIEWS FOR CONCRETE EMBEDDED STEEL COMPONENTS

There are eight draft RAIs that concern aging management reviews for concrete embedded steel components. These draft RAIs will be consolidated in the following three RAIs that will be issued to the applicant.

> RAI 3.3 - 3: In Table 3.3-5, “Emergency Cooling Canal,” and Table 3.3-9, “Intake Cooling Water,” what is the environment to which the concrete with embedded/encased carbon steel piping/fitting is exposed? Is that environment raw water-salt water, outdoor air, or some others?
>
> The raw water-salt water environment contains chlorides. Outdoor environment is defined in the St. Lucie LRA as 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. These chlorides in the moist salt-laden atmospheric air may reach the steel/concrete interface in the interior of the concrete through the process of permeation/infiltration/condensation through the pores of the concrete. Accumulation of high enough levels of chlorides will result in attacks and disruption of the protective film formed on the surfaces of the steel due to the originally high pH levels in the concrete environment. Once some particular region of the protective film is destroyed localized corrosion of the steel begins through an electrochemical process. However, no aging effects for carbon steel components in the emergency cooling canal system and the intake cooling water system associated with external exposure to an embedded/encased environment are identified in Table 3.3-5 and Table 3.3-9.
>
> Explain why the aging process as described is not applicable to St. Lucie. The applicant is also requested to discuss the operating history to support its conclusion on the absence of applicable aging effects with respect to cracking and loss of materials.
>
> RAI 3.3 - 4: In Table 3.3-11, “Primary Makeup Water,” of the LRA, the applicant stated that no aging effect requiring aging management is applicable to stainless steel piping/fittings embedded/encased in concrete. Stainless steel component is much more resistant to chloride-related corrosion than carbon steel components. However, the applicant also stated that plant experience has identified loss of materials and cracking as applicable aging effects for stainless steel components in the emergency core cooling system (ECCS) pipe tunnel.
>
> Explain why the aging effects applicable to stainless steel component in the ECCS pipe tunnel are not applicable to the embedded/encased environment at St. Lucie. The applicant is also requested to discuss the operating history for stainless steel components in embedded/encased environment to support its conclusion on the absence of applicable aging effects with respect to cracking and loss of materials.

RAI 3.3 - 5: If the concrete structure in which the carbon steel components are embedded is only exposed to atmospheric air with negligible levels of chlorides, the embedded/encased steel piping/fittings may still be susceptible to a corrosion process due to the carbon dioxide present in the atmospheric air. This corrosion process operates via the generation of carbonic acid which reduces the pH level in the vicinity of the steel/concrete interface. This neutralization process in turn disrupts the passivity of the protective films and permits the attack on the underlying carbon steel substrate. The water/cement ratio of the concrete is an important factor in affecting the rate of this corrosion process.

Justify why this aging process is not applicable to St. Lucie. Discuss the operating history to support the absence of applicable aging effects with respect to cracking and loss of materials.

Disposition: The following draft RAIs have been combined into three RAIs and will not be issued.

RAI 3.3.5-1

In table 3.3-5 what is the environment to which the concrete with embedded/encased carbon steel piping/fitting is exposed? Is that environment raw water-salt water, outdoor air, or some others? The raw water-salt water environment contains chlorides. Outdoor environment is defined in the St. Lucie LRA as moist, salt-laden atmospheric air, with temperature at 27F-93F, 73% average humidity, and exposure to weather, including precipitation and wind. Therefore, the outdoors environment also contains chlorides. These chlorides will reach the steel/concrete interface in the interior of the concrete through the process of permeation/infiltration through the pores of the concrete. Accumulation of high enough levels of chlorides will result in attacks and disruption of the protective film formed on the surfaces of the steel due to the originally high pH levels in the concrete environment. Once some particular region of the protective film is destroyed localized corrosion of the steel begins through an electrochemical process. The applicant has stated that no aging effects for components in the emergency cooling canal system associated with external exposure to an embedded/encased environment are identified in Table 3.3-5.

Has the applicant considered the corrosion of embedded/encased steel through the process described above? If this aging process is not applicable to St. Lucie, please provide the justification. The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

RAI 3.3.5-2

If the concrete structure is only exposed to atmospheric air with negligible levels of chlorides, the embedded/encased steel piping/fittings may still be susceptible to a corrosion process due to the carbon dioxide present in the atmospheric air. This corrosion process operates via the generation of carbonic acid which reduces the pH level in the vicinity of the steel/concrete interface. This neutralization process in turn disrupts the passivity of the protective films and permits the attack on the underlying steel substrate. The water/cement ratio of the concrete is an important factor in affecting the rate of this corrosion process. Has the applicant considered the corrosion of embedded/encased steel through the carbonation process (which is unrelated to chloride ions) described above? If this aging process is not applicable to St. Lucie please provide the justification. The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

RAI 3.3.5-3

In Section 3.5.2.3.2 of the LRA, the applicant stated that aggressive chemical attack, leading to corrosion of reinforcing steel and embedded steel, was identified as an age-related degradation mechanism for concrete structural components. At St. Lucie Units 1 and 2, this is applicable to concrete structural components exposed to the groundwater, salt water flow, or salt water splash (intake cooling water system discharge). The applicant described the structures with concrete structural components located below groundwater elevation as including the intake structures, the intake, discharge, and emergency cooling canals, the reactor auxiliary buildings, and the steam trestle areas. The intake structures and the intake, discharge, and emergency cooling canals concrete structural components are also exposed to high chlorides due to the flow of salt water. Based on the above, the applicant concluded that loss of material due to aggressive chemical attack leading to corrosion of reinforcing and embedded steel is an aging effect that requires aging management for concrete structural components below groundwater elevation, exposed to salt water flow, or exposed to salt water splash.

Does the above description include the process of infiltration/permeation of salt-laden water or air through the porosity of the concrete to the steel/concrete interfaces in the concrete interior? If so, please refer to RAIs 3.3.5-1 and 3.3.5-2 and provide the basis for not including aging effect requiring aging management for embedded/encased carbon steel piping/fitting in Table 3.3-5 of the LRA. If not, provide the basis for excluding permeation/infiltration of salt-laden water or air as an applicable aging process. The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

RAI 3.3.9-3

Some carbon steel piping/fittings in the intake cooling water system are externally exposed to embedded/encased environment. The applicant identifies this environment for components embedded in concrete. The applicant states that this environment does not introduce any applicable aging effect on the embedded components. The embedded carbon steel components, however, are susceptible to corrosion if chlorides are present in fresh concrete mix or if chlorides diffuse through cured concrete from the external environment. In addition, leaching and carbonation may reduce the pH level of concrete to a sufficiently low level so that the embedded carbon steel components become susceptible to corrosion.

The applicant is requested to describe the external environment for the concrete embedment and provide basis for excluding loss of material as an aging effect for the embedded carbon steel piping/fittings.

RAI 3.3.11-5

This RAI and the three following ones are similar to RAI 3.3.5-1, 2, and 3 but with specific references to components in the primary makeup water system. In Table 3.3-11 what is the environment to which the concrete with embedded/encased SS piping/fitting is exposed? Is that environment raw water-salt water, outdoor air, or some others? The raw water-salt water environment contains chlorides. Outdoor environment is defined in the St. Lucie LRA as 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. These chlorides will reach the steel/concrete interface in the interior of the concrete through the process of permeation/infiltration through the pores of the concrete. Accumulation of high enough levels of chlorides will result in attacks and disruption of the protective film formed on the surfaces of the steel due to the originally high pH levels in the concrete environment. Once some particular region of the protective film is destroyed localized corrosion of the steel begins through an electrochemical process. The applicant has stated that no aging effects for components in the primary makeup water system associated with external exposure to an embedded/encased environment are identified in Table 3.3-11.

Has the applicant considered the corrosion of embedded/encased steel through the process described above? If this aging process is not applicable to St. Lucie please provide the justification. The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

RAI 3.3.11-6

If the concrete structure is only exposed to atmospheric air with negligible levels of chlorides, the embedded/encased steel piping/fittings may still be susceptible to a corrosion process due to the carbon dioxide present in the atmospheric air. This corrosion process operates via the generation of carbonic acid which reduces the pH level in the vicinity of the steel/concrete interface. This neutralization process in turn disrupts the passivity of the protective films and permits the attack on the underlying steel substrate. The water/cement ratio of the concrete is an important factor in affecting the rate of this corrosion process.

Has the applicant considered the corrosion of embedded/encased steel through the carbonation process (which is unrelated to chloride ions) described above? If this aging process is not applicable to St. Lucie please provide the justification. The applicant is also requested to discuss the operating history to support its conclusion on the applicable aging effect.

RAI 3.3.11-7

In Section 3.5.2.3.2 of the LRA, the applicant stated that aggressive chemical attack, leading to corrosion of reinforcing steel and embedded steel, was identified as an age-related degradation mechanism for concrete structural components. At St. Lucie Units 1 and 2, this is applicable to concrete structural components exposed to the groundwater, salt water flow, or salt water splash (Intake Cooling Water System discharge). The applicant described the structures with concrete structural components located below groundwater elevation as including the intake structures, the intake, discharge, and primary makeup waters, the reactor auxiliary buildings, and the steam trestle areas. The intake structures and the intake, discharge, and primary makeup waters concrete structural components are also exposed to high chlorides due to the flow of salt water. Based on the above, the applicant concluded that loss of material due to aggressive chemical attack leading to corrosion of reinforcing and embedded steel is an aging effect that requires aging management for concrete structural components below groundwater elevation, exposed to salt water flow, or exposed to salt water splash.

Does the above description include the process of infiltration/permeation of salt-laden water or air through the porosity of the concrete to the steel/concrete interfaces in the concrete interior? If so, please refer to RAI 3.3.11-5 and 3.3.11-6 and provide the basis for not including aging effect requiring aging management for embedded/encased stainless steel piping/fitting in Table 3.3-11 of the LRA. If not, provide the basis for excluding permeation/infiltration of salt-laden water or air as an applicable aging process.

RAI 3.4.5

The steam and power conversion systems are exposed to internal environments of treated water, lubricating oil, and air/gas; and external environments of outdoor, containment air, underground, and potential borated water leaks. The only parts of systems or components considered to be inaccessible for inspection are those that are buried or embedded/encased in concrete. In Section 3.4.1 of the LRA, the applicant indicated that only auxiliary feedwater system contains sections of buried stainless steel piping, exposed to soil/fill and ground water chemicals. Discuss the aging management review for these buried piping section at St. Lucie Units 1 and 2 that all aging mechanisms are adequately managed.

DRAFT RAIs CONCERNING HEATING AND VENTILATION SYSTEMS

There are three draft RAIs that addressed heating and ventilation system components. These draft RAIs have been combined into the following RAI that will be issued to the applicant.

> RAI 2.3.2 - 2: The diagrams of the containment cooling system provided in drawings 1-HVAC-01 and 2-HVAC-02 for Units 1 and 2, respectively, are not sufficiently detailed for the staff to determine the intended system boundaries for license renewal. For example, these drawings do not show whether the applicant considered the duct riser and ring header to be within the scope of license renewal. The notation "to ring header" shown on the downstream side of the containment coolers does not clearly show what components are within the scope of license renewal. On page 6.2-36 of the updated FSAR for Unit 2 the applicant states that blowout panels are provided on the duct risers between the fan coolers and ring header to attenuate high-pressure transmission from inside the secondary shield wall through the duct. Similar blowout panels are also described as components of the containment cooling system on page 6.2-50 of the updated FSAR for Unit 1. However, blowout panels are not specifically identified as a component or commodity group in Table 3.2-1 of the LRA.
>
> Clarify whether all appropriate containment cooling system components are included within the scope of license renewal and subject to an aging management review, and identify the components and commodity groups that include the ring ducts, risers, and blowout panels. If only a portion of the component cooling water system is within the scope of license renewal and subject to an aging management review, identify the boundary between the in-scope and out-of-scope portions by providing additional textual description,

drawings, and/or references (such as designed-basis documents) to supplement the LRA and drawings already provided.

Disposition: The following draft RAIs have been combined into a single RAI and will not be issued.

RAI 2.3.2.1-1

Page 6.2-36 of the UFSAR for Unit 2 states that “blowout panels are provided on the duct risers between the fan coolers and ring header to attenuate high pressure transmission from inside the secondary shield wall through the duct.” Similar blowout panels are also described as components of the containment cooling system on Page 6.2-50 of the UFSAR for Unit 1. However, blowout panels are not identified as a component/commodity group in Table 3.2-1 of the LRA. The blowout panels appear to perform a safety-related intended function, and if so should be within the scope of license renewal and subject to an AMR. Please include the blowout panels and any associated gaskets and closure bolting that support the pressure boundary intended function of the panels to Table 3.2-1 or justify their exclusion.

RAI 2.3.2.1-2

The diagrams of the Containment Cooling System provided in LRA Figures 1-HVAC-01 and 2-HVAC-02 for Units 1 and 2, respectively, are not detailed enough to determine the intended system boundaries for license renewal. The notation "to ring header" shown on the downstream side of the containment coolers does not clearly show what components are in the scope of license renewal. For example, these drawings do not show whether the licensee considered the duct riser and ring header to be within the scope of license renewal. The intended boundary on the upstream side of the containment coolers is also vague. It is requested that the applicant provide more detailed drawings and/or additional references (such as DBDs) to supplement these license renewal drawings already provided.

RAI 2.4.1-1

The diagrams of the Containment Cooling System are not detailed enough for the staff to determine the system boundaries. Please provide more detailed drawings and/or additional references to supplement these drawings. Example: Drawings do not show whether duct riser and ring header are within scope.