L-2019-019
10 CFR 54.17

January 31, 2019

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

Re: Florida Power & Light Company
Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Turkey Point Units 3 and 4 Subsequent License Renewal Application Safety Review – December 20, 2018 Public Meeting Action Item Responses

References:

1. FPL Letter L-2018-004 to NRC dated January 30, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application (ADAMS Accession No. ML18037A812)

2. FPL Letter L-2018-082 to NRC dated April 10, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application – Revision 1 (ADAMS Accession No. ML18113A134)

3. NRC Public Meeting Updated Agenda dated November 20, 2018, Telecon Between NRC and FPL to Discuss Items Associated with the Safety Review of the Turkey Point Subsequent License Renewal Application (ADAMS Accession No. ML 18353A571)

4. FPL Letter L-2018-166 to NRC dated October 16, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application – Safety Review Requests for Additional information (RAI) Set 3 Responses (ADAMS Accession No. ML18296A024)

On April 10, 2018, Florida Power & Light Company (FPL) submitted to the NRC Revision 1 of the subsequent license renewal application (SLRA) for Turkey Point Units 3 and 4 (Reference 1), as well as supplemental information for the SLRA Environmental Report (ER) (Reference 2). On December 20, 2018, the NRC and FPL held a public meeting (teleconference) to discuss items associated with the safety review of the SLRA for Turkey Point Units 3 and 4 (Reference 3).

The purpose of this letter is to provide, as attachments to this letter, responses to the discussion topic action items assigned to FPL during the referenced public meeting. These responses revise and supersede (or supplement) the corresponding RAI responses in Reference 4, and/or amend the SLRA (Reference 2).

A084
A006
NRR

If you have any questions, or need additional information, please contact me at 561-691-2294.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 31, 2019.

Sincerely,

William Maher
Senior Licensing Director
Florida Power & Light Company

WDM/RFO

Attachments: 7 Public Meeting Action Item Responses (refer to Letter Attachment Index)

LETTER ATTACHMENT INDEX			
Attachment	**Action Item Response**	**Attachment**	**Action Item Response**
1	Set 3 RAI B.2.3.20-2 Response Revision	5	Fire Rated Assemblies AMR Revision
2	SLRA Appendix B Revision	6	Set 3 RAI B.2.3.27-2 Response Supplement
3	Set 3 RAI B.2.3.11-1 Response Revision	7	Transmission Conductor AMR and XI E1 AMP Revisions
4	Fire Protection AMP Revision		

cc:

Senior Resident Inspector, USNRC, Turkey Point Plant
Regional Administrator, USNRC, Region II
Project Manager, USNRC, Turkey Point Plant
Plant Project Manager, USNRC, SLRA
Plant Project Manager, USNRC, SLRA Environmental
Ms. Cindy Becker, Florida Department of Health

NRC RAI Letter Nos. ML18243A006 and ML18243A007 dated September 17, 2018

One-Time Inspection, GALL AMP XI.M32

RAI B.2.3.20-2

Background:

SLRA Table 3.2.2-2, states that carbon steel piping exposed internally to treated borated water will be managed for loss of material by the Water Chemistry and One - Time Inspection programs.

The "scope of program" program element of GALL-SLR AMP XI.M32 states the following:

1. The program cannot be used for structures or components with known age-related degradation mechanisms as determined based on a review of plant-specific and industry OE for the prior operating period.

Periodic inspections are proposed in these cases for structures or components with known age- related degradation.

During the audit, the staff reviewed AR 01638881, which states, "[t]here is a long history of Containment Spray carbon steel piping corrosion at PTN [Turkey Point]." Additionally, the AR states that the Containment Spray System Piping Inspection program was developed to perform ultrasonic testing (UT) with a 54 month frequency. The staff also noted that the AR states "corrosion product buildup can occur within the Containment Spray headers have been documented in several AR..." the AR goes on to state that most of the corrosion is considered to be general boric acid corrosion and there is also a buildup of bimetallic weld transition from carbon to stainless steel.

Issue:

It is not clear to the staff how the One-Time Inspection program will be sufficient for managing age-related degradation of carbon steel piping in the containment spray system, when a history of loss of material is apparent. The One-Time Inspection program states that the program cannot be used for structures or components with known age-related degradation mechanisms as determined based on a review of plant-specific and industry OE for the prior operating period. The program states that periodic inspections are proposed in these cases.

Request:

State the basis for using the One-Time Inspection program for carbon steel piping in the containment spray system. Alternatively, provide the following:

1. Provide a periodic inspection program that will be used to monitor the loss of material for carbon steel.

2. Provide the inspection frequency that will be used to monitor wall thinning for carbon steel piping in the containment spray system.
3. Provide how bimetallic corrosion (galvanic corrosion) will be managed for the weld transition from carbon to stainless steel.

FPL Response:

This revised RAI response supersedes in its entirety the RAI responses provided in Attachment 5 of Reference 1 as discussed during the November 15, 2018 NRC public meeting with FPL (Reference 2) and Attachment 11 of Reference 3 as discussed during the December 20, 2018 NRC public meeting with FPL (Reference 4).

The carbon steel piping in the containment spray system is located inside containment and is partially filled with stagnant borated water, due to leakage through MOV-3/4-880A/B, up to a maximum water elevation of the refueling water storage tank of 65 feet. The most susceptible locations to loss of material due to generic, pitting, crevice, galvanic, or boric acid corrosion are inspected using ultrasonic thickness measurements in accordance with the existing Containment Spray System Piping Inspection AMP. The inspections consider the most susceptible locations due to the bimetallic (galvanic) couplings on the stainless steel elbows to carbon steel pipe (on the replaced elbows) and the carbon steel elbows to the stainless steel pipe (near the containment penetration). The existing program calculates loss of material rates based on the UT measurements and either increases or decreases frequencies of inspections or replaces carbon steel pipe with stainless steel pipe as necessary. The frequency of these inspections were initially set to occur every outage, but the current inspection frequency is every five outages based on an evaluation of the observed loss of material rates and past replacement of limiting carbon steel elbows with stainless steel elbows.

Based on the site-specified operating experience obtained through the implementation of the Containment Spray System Piping Inspection AMP during the current license renewal period of extended operation (PEO), PTN has committed to replace the subject carbon steel piping with stainless steel piping prior to entry into the SLR subsequent period of extended operation (SPEO). The scope of the project involves the replacement of the carbon steel piping from the stainless steel to carbon steel bimetallic weld for the four containment spray piping headers (3A, 3B, 4A and 4B) at penetrations P-19A and P-19B to a plant elevation of 65 feet inside containment. This will eliminate the loss of material and long-term loss of material aging effects for the carbon steel containment spray piping that is currently exposed to an internal environment of treated borated water. Note that visual inspection of the remaining carbon steel containment spray piping above the 65 foot elevation inside containment would still be required to manage the aging effects of loss of material due to the potential exposure to borated water leakage on the external surfaces of the piping and exposure to an internal and external environment of indoor uncontrolled air.

The PTN SLRA is revised to capture this commitment and eliminate the carbon steel piping material exposed to an internal environment of treated borated water.

References:

1. FPL Letter L-2018-166 to NRC dated October 16, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application Safety Review Requests for Additional Information (RAI) Set 3 Responses (ADAMS Accession No. ML18296A024)
2. NRC Public Meeting Agenda dated November 5, 2018, Telecon Between NRC and FPL to Discuss Items Associated with the Safety Review of the Turkey Point Subsequent License Renewal Application (ADAMS Accession No. ML18315A004)
3. FPL Letter L-2018-223 to NRC dated December 14, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application Safety Review - November 15, 2018 Public Meeting Action Item Responses (ADAMS Accession No. ML18352A885)
4. NRC Public Meeting Updated Agenda dated November 20, 2018, Telecon Between NRC and FPL to Discuss Items Associated with the Safety Review of the Turkey Point Subsequent License Renewal Application (ADAMS Accession No. ML18353A571)

Associated SLRA Revisions:

SLRA Table 3.2-1, Table 3.2.2-2, and Table 17-3 are amended as indicated by the following text deletion (strikethrough) and text addition (red underlined font) revisions.

Revise SLRA Table 3.2-1 Item 90 as follows:

Table 3.2-1: Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect / Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2-1, 090	Steel components exposed to treated water, treated borated water, raw water	Long-term loss of material due to general corrosion	AMP XI.M32, "One-Time Inspection"	No	Consistent with NUREG-2191. The One-Time Inspection AMP will be used to manage long-term loss of material in the ~~steel containment spray piping and the~~ pressurizer relief tank exposed to treated borated water. The pressurizer relief tank is coated ~~and the containment spray piping is normally empty~~.

Revise SLRA Table 3.2.2-2 as follows:

Table 3.2.2-2: Containment Spray – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
~~Piping~~	~~Pressure Boundary~~	~~Carbon steel~~	~~Treated borated water (int)~~	~~Long-term loss of material~~	~~One-Time Inspection~~	~~V.A.E-434~~	~~3.2-1, 090~~	~~A~~
~~Piping~~	~~Pressure Boundary~~	~~Carbon steel~~	~~Treated borated water (int)~~	~~Loss of material~~	~~Water Chemistry~~ ~~One-Time Inspection~~	-	-	~~H,1~~

Revise SLRA Table 3.2.2-2 notes and plant specific notes as follows:

Notes for Table 3.2.2-2

A. Consistent with component, material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.

B. Consistent with component, material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP has exceptions to NUREG-2191 AMP description.

~~H. Aging effect not in NUREG-2191 for this component, material, and environment combination.~~

~~**Plant-Specific Notes for Table 3.2.2-2**~~

~~1. Aging effect for this component, material, and environment combination is not in NUREG-2191. This line item is specific to the carbon steel piping header for containment spray. This portion of piping is normally drained but is flooded during system testing. The Water Chemistry and One-Time Inspection AMPs are used to manage this aging effect as these AMPs are used to manage loss of material in other portions of the treated borated water systems. Note that long-term loss of material is addressed by GALL line item V.A.E-434 and is included in this AMR as well.~~

Revise SLRA Table 17-3, List of SLR Commitments and Implementation Schedule, to add new commitment 55.

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
55	Not applicable	Not applicable	Replace a portion of the existing PTN Units 3 and 4 containment spray system carbon steel piping inside containment with stainless steel piping. The scope of project involves the replacement of the carbon steel piping from the stainless steel to carbon steel bimetallic weld for the four containment spray piping headers (3A, 3B, 4A and 4B) at penetrations P-19A and P-19B to a plant elevation of 65 feet inside containment.	Prior to: PTN3: 12/01/2024 PTN4: 12/01/2024

Associated Enclosures:

None

ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD, GALL AMP XI.M1:

Discussion:

This response revises SLRA Appendix B.2.3.3 to correct the typographical error by changing the "PTN ASME Section XI, Subsection IWF AMP" to the "PTN ASME Section XI, Subsections IWB, IWC, and IWD AMP".

References:

None

Associated SLRA Revisions:

SLRA Section B.2.3.3 ("Exceptions to NUREG-2191" paragraph) is amended as indicated by the following text deletion (strikethrough) and text addition (red underlined font) revision.

> NUREG-2191 recommends, as a preventive measure that can reduce the potential for SSC or IGSCC, using bolting material for the reactor head closure studs that have an actual measured yield strength limited to less than 1,034 megapascals (MPa) (150 kilo pounds per square inch (ksi)) (NUREG-1339). PTN closure stud bolting is considered high strength steel (Section 3.1.2.1.3), and PTN is taking exception to Element 2(d), Preventive Actions. The exception is acceptable because PTN meets all other program element requirements for reactor head closure stud bolting and will enhance the program so that replacement bolts are limited to a yield strength of 150 ksi. In addition, PTN performs volumetric inspection of high-strength bolting for cracking under the PTN ASME Section XI, Subsection~~s~~ ~~IWF~~ **IWB, IWC, and IWD** AMP.

Associated Enclosures:

None

NRC RAI Letter Nos. ML18243A006 and ML18243A007 dated September 17, 2018

Open Cycle Cooling Water System, GALL AMP XI.M20

Regulatory Basis:

Section 54.21(a)(3) of 10 CFR requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. As described in the SRP-SLR, an applicant may demonstrate compliance with 10 CFR 54.21(a)(3) by referencing the GALL-SLR Report. In order to complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

RAI B.2.3.11-1

Background:

The recommendations in Aging Management Program XI.M20, "Open-Cycle Cooling Water System" (OCCW) in Generic Aging Lessons Learned for Subsequent License Renewal (GALL- SLR) Report state that the scope of program addresses piping and piping components exposed to raw water in the OCCW system. Enercon Report FPLCORP020-REPT-082, Aging Management Program Basis Document – Open-Cycle Cooling Water System," Revision 1 shows that the only implementing document associated with piping inspections is SPEC-M-086, "Intake Cooling Water System Piping Inspection."

Issue:

The staff noted that SPEC-M-086 describes the scope of the inspection procedure to include selected piping with nominal diameters of 24 inches or larger and did not specify inspection requirements for piping with diameters less than 24 inches. Drawing 5614-M-3019, Revision 28, "Intake Cooling Water System," appears to include in-scope OCCW piping with diameters less than 24 inches.

Request:

Discuss how the applicable aging effects (e.g., loss of material, flow blockage) for in-scope OCCW piping with diameters less than 24 inches are managed by the OCCW program. Describe the inspections that are performed on in-scope OCCW piping with diameters less than 24 inches and cite any relevant procedures that address inspections of this piping.

FPL Response:

This revised RAI response supersedes in its entirety the RAI responses provided in Attachment 34 of Reference 1 discussed during the November 15, 2018 NRC public meeting with FPL (Reference 2) and Attachment 12 of Reference 3 discussed during the December 20, 2018 NRC public meeting with FPL (Reference 4).

For the current license renewal period of extended operation, the scope of the Intake Cooling Water System Inspection Program for piping is limited to the following:

- Piping from the ICW pump discharge check valves to the component cooling water (CCW) basket strainers
- Piping from the ICW pump discharge check valves to the turbine plant cooling water (TPCW) baskets strainers

For SLR, the Open-Cycle Cooling Water (OCCW) System AMP will replace the current Intake Cooling Water System Inspection Program. The scope of the OCCW System AMP for piping will be expanded to include:

- Piping from the ICW pump discharge flanges to the inlet flanges of the component cooling water (CCW) heat exchangers
- Piping from the ICW pump discharge flanges to the turbine plant cooling water (TPCW) baskets strainers

This expanded piping scope for the OCCW System AMP now includes gray cast iron piping with diameters greater than 20 inches. The aging effects of ICW piping outside the boundaries of the OCCW System AMP and exposed to an internal environment of raw water are managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP and the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks AMP if the component is coated.

The OCCW System AMP will also include portions of the ICW pump casings exposed to raw water.

A number of AMR line items from Table 3.3.2-1 of the PTN SLRA are updated to reflect this scope of the PTN Open-Cycle Cooling Water System AMP.

References:

1. FPL Letter L-2018-166 to NRC dated October 16, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application Safety Review Requests for Additional Information (RAI) Set 3 Responses (ADAMS Accession No. ML18296A024)
2. NRC Public Meeting Updated Agenda dated November 5, 2018, Telecon Between NRC and FPL to Discuss Items Associated with the Safety Review of the Turkey Point Subsequent License Renewal Application (ADAMS Accession No. ML18315A004)
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4. NRC Public Meeting Updated Agenda dated November 20, 2018, Telecon Between NRC and FPL to Discuss Items Associated with the Safety Review of the Turkey Point Subsequent License Renewal Application (ADAMS Accession No. ML18353A571)

Associated SLRA Revisions:

SLRA Table 3.3.2-1 is amended as indicated by the following text deletion (strikethrough) and text addition (red underlined font) revisions.

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Flow element	**Pressure boundary**	**Ductile iron**	**Raw water (int)**	**Wall thinning - erosion**	**Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	**VII.C1.A-409**	**3.3-1, 126**	**E, 4**
Flow element	Pressure boundary	Stainless steel	Raw water (int)	Loss of material Flow blockage	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	~~VII.C1.A-54~~ **VII.C1.A-727**	~~3.3-1, 040~~ **3.3-1, 134**	A
Flow element	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Flow element	Throttle	Stainless steel	Raw water (int)	Loss of material Flow blockage	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	~~VII.C1.A-54~~ **VII.C1.A-727**	~~3.3-1, 040~~ **3.3-1, 134**	A
Flow element	Throttle	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Heat exchanger (channel head)	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**

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Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Heat exchanger (tubes)	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Heat exchanger (~~T~~**tubesheet**)	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Nozzle	Pressure boundary	Gray cast iron	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Nozzle	Pressure boundary	Nickel alloy	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Orifice	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Piping	**Pressure boundary**	**Gray cast iron**	**Raw water (int)**	**Wall thinning - erosion**	**Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	**VII.C1.A-409**	**3.3-1, 126**	**E, 4**
Piping	**Pressure boundary**	**Coating**	**Raw water (int)**	**Loss of coating or lining integrity**	**Open-Cycle Cooling Water System**	**VII.C1.A-416**	**3.3-1, 138**	**E, 3**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping	Pressure boundary	Copper alloy	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~14~~
Piping	Pressure boundary	Ductile iron	Raw water (int)	Loss of material Flow blockage	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	~~VII.C1.AP-194~~ **VII.C1.A-727**	~~3.3-1, 037~~ **3.3-1, 134**	A
Piping	Pressure boundary	Ductile iron	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~14~~

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping **(Note 5)**	Pressure boundary	Gray cast iron	Raw water (int)	Wall thinning - erosion	Open-Cycle Cooling Water System	VII.C1.A-409	3.3-1, 126	E, 1
Piping **(Note 5)**	Pressure boundary	Gray cast iron	Raw water (int)	Loss of material Flow blockage	Open-Cycle Cooling Water System	VII.C1.AP-194	3.3-1, 037	A
Piping	Pressure boundary	Nickel alloy	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~14~~ **14**
~~Piping~~	~~Pressure boundary~~	~~Stainless steel~~	~~Raw water (int)~~	~~Loss of material Flow blockage~~	~~Open-Cycle Cooling Water System~~	~~VII.C1.A-54~~	~~3.3-1, 040~~	~~A~~
Piping and piping components	Structural integrity (attached)	Ductile iron	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~14~~ **14**
Pump casing	Pressure boundary	Carbon steel	Raw water (int)	Loss of material Flow blockage	~~Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components~~ **Open-Cycle Cooling Water System**	~~VII.C1.A-727~~ **VII.C1.AP-194**	~~3.3-1, 134~~ **3.3-1, 037**	A

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Pump casing	Pressure boundary	Gray cast iron	Raw water (ext)	Loss of material	~~External Surfaces Monitoring of Mechanical Components~~ **Open-Cycle Cooling Water System**	~~VII.C1.A-727~~ **VII.C1.AP-194**	~~3.3-1, 134~~ **3.3-1, 037**	~~E-2~~ **A**
Pump casing	**Pressure boundary**	**Stainless steel**	**Raw water (ext)**	**Loss of material**	**Open-Cycle Cooling Water System**	**VII.C1.AP-194**	**3.3-1, 037**	**A**
Thermowell	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Tubing	Pressure boundary	Nickel alloy	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Tubing	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
~~Tubing~~	~~Pressure boundary~~	~~Stainless steel~~	~~Raw water (int)~~	~~Loss of material Flow blockage~~	~~Open-Cycle Cooling Water System~~	~~VII.C1.A-54~~	~~3.3-1, 040~~	~~A~~
Valve body	Pressure boundary	Carbon steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Valve body	**Pressure boundary**	**Gray cast iron**	**Raw water (int)**	**Wall thinning - erosion**	**Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	**VII.C1.A-409**	**3.3-1, 126**	**E, 4**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Valve body	Pressure boundary	Copper alloy	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Valve body	Pressure boundary	Ductile iron	Raw water (int)	Wall thinning **-** **erosion**	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**
Valve body	Pressure boundary	Nickel alloy	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~1~~**4**

Table 3.3.2-1: Intake Cooling Water — Summary of Aging Management Evaluation								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Valve body	Pressure boundary	Stainless steel	Raw water (int)	Wall thinning - erosion	~~Open-Cycle Cooling Water System~~ **Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components**	VII.C1.A-409	3.3-1, 126	E, ~~14~~ **4**

Notes for Table 3.3.2-1

A. Consistent with component, material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.

B. Consistent with component, material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP has exceptions to NUREG-2191 AMP description.

C. Component is different, but consistent with material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.

D. Component is different, but consistent with material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP has exceptions to NUREG-2191 AMP description.

E. Consistent with NUREG-2191 material, environment, and aging effect but a different AMP is credited or NUREG-2191 identifies a plant-specific AMP.

Plant-Specific Notes for Table 3.3.2-1

1. The Open-Cycle Cooling Water System AMP is enhanced to manage the wall thinning due to erosion aging effect.
2. These pump casings have a raw water external environment and loss of material is managed by the

External Surfaces Monitoring of Mechanical Components AMP.

3. **The Open-Cycle Cooling Water System AMP is enhanced to manage the loss of coating or lining integrity aging effect.**
4. **The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP is used to manage the wall thinning due to erosion aging effect.**
5. **The ICW system piping within the scope of the Open-Cycle Cooling Water System AMP includes the piping between the discharge flange of the ICW pumps to the inlet flange of the CCW heat exchangers and to the TPCW strainers.**

Revise SLRA Section 17.2.2.11 to add the following text after the first paragraph as follows:

The Open-Cycle Cooling Water (OCCW) System AMP will include the following SSC scope:

(a) **Portions of the ICW pump casings that are exposed to a raw water environment;**

(b) **Piping and piping components from the ICW pump discharge flanges to the inlet flanges of the component cooling water (CCW) heat exchangers; and**

(c) **Piping and piping components from the ICW pump discharge flanges to the turbine plant cooling water (TPCW) baskets strainers.**

Revise SLRA Section B.2.3.11 to add the following text after the first paragraph of "Program Description" as follows:

The Open-Cycle Cooling Water (OCCW) System AMP will include the following SSC scope:

a. **Portions of the ICW pump casings that are exposed to a raw water environment;**

b. **Piping and piping components from the ICW pump discharge flanges to the inlet flanges of the component cooling water (CCW) heat exchangers; and**

c. **Piping and piping components from the ICW pump discharge flanges to the turbine plant cooling water (TPCW) baskets strainers.**

Revise the third paragraph of SLRA Section B.2.3.11 "Program Description" as follows:

The PTN OCCW **System** AMP works in conjunction with other PTN AMPs as described in this paragraph. For buried OCCW system piping within the scope of this AMP, the aging effects on the external surfaces of the piping are managed by the PTN Buried and Underground Piping and Tanks AMP; however, the internal surfaces are managed by this AMP. The aging management of closed-cycle cooling water systems is described in the PTN Closed Treated Water Systems AMP and is not included as part of this AMP. The PTN OCCW System AMP also manages the loss of coating integrity for internal coatings of piping within the scope of this AMP. ~~This piping includes cement-lined cast iron piping from the three (3) ICW pump discharge check valves to the component cooling water (CCW) basket strainers and piping from the three (3) ICW pump discharge check valves to the turbine plant cooling water (TPCW) baskets strainers.~~ This AMP includes the guidance provided in the "scope of program" elements of the PTN Internal ~~c~~**C**oatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks AMP to manage loss of coating integrity.

Associated Enclosures:

None

Fire Protection, GALL AMP XI.M26

Regulatory Basis:

10 CFR 54.21(a)(3) requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. In order to complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

Background:

SLRA Section B.2.3.15, "Fire Protection," program, Enhancement No. 1 states, in part, that the fire damper inspection procedure(s) will be updated to state "the acceptance criteria for the fire damper inspections as no visual indications of cracks or corrosion that could affect the component intended function."

The GALL-SLR AMP XI.M26, "Fire Protection," "acceptance criteria" program element, states, in part, that the acceptance criteria include "no visual indications of cracks or corrosion of fire damper assemblies."

SLRA Section B.2.3.15 states that the Fire Protection program will be consistent with GALL SLR Report AMP XI.M26.

Issue:

The enhancement could allow degradation beyond that recommended in GALL SLR AMP XI.M26, which states the acceptance criteria to be "no visual indications of cracks or corrosion." The SLRA does not state a basis for this exception to AMP XI.M26. In particular: (a) the criteria being used to determine the threshold at which to take corrective action; and (b) the qualifications of individuals determining the potential impact on the intended function of the damper assembly are not stated.

FPL Discussion:

During a recent audit by the NRC Staff, FPL was requested to state the basis for the exception to AMP XI.M26 including at least the criteria being used to determine the threshold at which to take corrective action and the qualifications of individuals determining the potential impact on the intended function of the damper assembly.

No exceptions to NUREG-2191 AMP XI.M26 are being taken. The threshold for corrective action on fire dampers is updated as follows:

- Any visual indication of cracking or corrosion on a fire damper assembly will be documented and evaluated for repair/replacement in accordance with the Turkey Point Corrective Action Program.

The personnel responsible for inspecting fire damper assemblies and the personnel responsible for determining the potential adverse impact and appropriate corrective action are to be qualified per the NRC-approved fire protection program (NFPA 805). The need for inspector qualification is currently listed in SLRA Table 17-3 (Commitment 19) and Section B.2.3.15 (Element 4 enhancement) but is clarified to also discuss the qualifications of the personnel evaluating inspection results for corrective action.

References:

None

Associated SLRA Revisions:

SLRA Table 17-3 and Section B.2.3.15 are amended as indicated by the following text deletion (strikethrough text) and text addition (red underlined font) revisions.

Revise SLRA Table 17-3 (Commitment 19) as follows:

19	Fire Protection (17.2.2.15)	XI.M26	Continue the existing PTN Fire Protection AMP, including enhancement to: a) Inspect for corrosion and cracking on all in-scope fire dampers assemblies~~, with an acceptance criteria of no visual indications of cracks or corrosion that could affect the components' intended function~~ **Any visual indication of cracking or corrosion on a fire damper assembly will be documented and evaluated for repair/replacement in accordance with the Turkey Point Corrective Action Program.**; b) Ensure that **the** personnel that inspect **and the personnel that evaluate the condition of** penetration seals, walls, ceilings, floors, doors, fire damper assemblies, and other fire barrier materials are qualified per the NRC-approved fire protection program (NFPA 805) to perform such inspections **and qualified to determine appropriate corrective action, respectively**; c) Document any degradation identified in the halon fire suppression system tests and include in the trending analysis; d) Project identified degradation until the next scheduled inspection when practical; e) Evaluate trending inspection results against acceptance criteria to confirm that the sampling bases (e.g., selection, size, frequency) and the timing of subsequent inspections will maintain the components' intended functions throughout the SPEO. If any projected inspection results will not meet acceptance criteria prior to the next scheduled inspection, then inspection frequencies are adjusted as determined by the PTN corrective action program.	No later than 6 months prior to the SPEO, i.e.: PTN3: 1/19/2032 PTN4: 10/10/2032

Revise SLRA Section B.2.3.15 (enhancements table) as follows:

Element Affected	Enhancement
3. Parameters Monitored or Inspected 6. Acceptance Criteria	Update the fire damper inspection procedure(s) to specify inspections for corrosion and cracking on all in-scope fire damper assemblies, and state **that any visual indication of cracking or corrosion on a fire damper assembly will be documented and evaluated for repair/replacement in accordance with the Turkey Point Corrective Action Program.** ~~the acceptance criteria for the fire damper inspections as no visual indications of cracks or corrosion that could affect the component intended functions.~~
4. Detection of Aging Effects	Update the procedures that inspect penetration seals, walls, ceilings, floors, doors, fire damper assemblies, and other fire barrier materials to state that the inspectors **and evaluators** are qualified per the NRC-approved fire protection program (NFPA 805) to perform such inspections **and determine appropriate corrective action, respectively**.

Associated Enclosures:

None

Fire Rated Assemblies Aging Management Review

Regulatory Basis:

10 CFR 54.21(a)(3) requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. In order to complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

Background:

SLRA Table 3.5.2-10, states that hardening, loss of strength, and shrinkage are managed for cementitious fireproofing material exposed to air indoor uncontrolled and air indoor controlled by the Fire Protection program. The line item cites generic note J and plant specific note 2, which states, "[c]omponent and material are different, but consistent with environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description." SLRA Table 3.3-1, item 3.3-1, 057, as well as the SRP SLR, address hardening, loss of strength, and shrinkage for elastomeric fire barrier penetration seals, not cementitious materials, exposed to air, condensation.

Issue:

Cementitious fireproofing material aging effects, which include cracking and loss of material, consistent with GALL SLR Report items such as TP-36 and A-90, are not consistent with elastomeric material aging effects.

FPL Discussion:

During a recent audit by the NRC Staff, FPL was requested to state the basis for the aging effects currently identified in the SLRA along with the basis for the omission of loss of material and cracking.

The aging effects currently listed in the SLRA (hardening, loss of strength, and shrinkage) are applicable to fire barriers that employ elastomeric sealing materials. The cementitious fireproofing materials at Turkey Point (e.g., Albi-Duraspray and Monokote) are not elastomeric, and therefore, the aging effects of hardening, loss of strength, and shrinkage are not applicable to those materials.

The omitted aging effects identified in the 'Issue' discussion (loss of material and cracking) are appropriate for fire barriers at PTN that employ Thermo-lag, Flamemastic, Cerafiber, and cementitious fireproofing (e.g., Albi Duraspray and Monokote).

The line items for fire barriers in SLRA Table 3.5.2-10 are updated to align with the bases as stated above. Additionally, SLRA Table 3.5.2-10 Note 2 is no longer required and is to be deleted.

References:

None

Associated SLRA Revisions:

SLRA Table 3.5.2-10 is amended as indicated by the following text deletion (strikethrough text) and text addition (red underlined font) revisions.

Revise SLRA Table 3.5.2-10 as follows:

Table 3.5.2-10: Fire Rated Assemblies — Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Drip shields over Thermo-lag	Fire barrier	Stainless steel	Air – outdoor	Loss of material Cracking	Fire Protection	III.B2.T-37b	3.5-1, 100	E
Electrical fireproofing protection	Fire barrier	Thermo-lag	Air – indoor uncontrolled Air – indoor controlled Air – outdoor	~~Hardening~~ ~~Loss of strength~~ ~~Shrinkage~~ **Loss of material** **Cracking**	Fire Protection	~~VII.G.A-19~~ -	~~3.3-1, 057~~ -	~~C~~ J
Fire doors	Fire barrier	Carbon steel	Air – indoor uncontrolled Air – indoor controlled Air – outdoor	Loss of material	Fire Protection	VII.G.A-21	3.3-1, 059	A
Fire doors between Cable Spreading Room and AC Fan Room	Shelter, protection Fire barrier	Carbon steel	Air – indoor uncontrolled Air – indoor controlled	Loss of material	Fire Protection	VII.G.A-21	3.3-1, 059	A

Fire doors, Control Room	Pressure boundary Shelter, protection Fire barrier	Carbon steel	Air – indoor uncontrolled Air – indoor controlled Air – outdoor	Loss of material	Fire Protection	VII.G.A-21	3.3-1, 059	A

Table 3.5.2-10: Fire Rated Assemblies — Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management	NUREG-2191 Item	Table 1 Item	Notes
Fire retardant coating	Fire barrier	Flamemastic	Air – indoor uncontrolled Air – indoor controlled	~~Hardening~~ ~~Loss of strength~~ ~~Shrinkage~~ **Loss of material** **Cracking**	Fire Protection	~~VII.G.A-19~~ -	~~3.3-1, 057~~ -	~~A~~ J
Fire sealed isolation joint	Fire barrier	Cerafiber	Air – outdoor	~~Hardening~~ ~~Loss of strength~~ ~~Shrinkage~~ **Loss of material** **Cracking**	Fire Protection	~~VII.G.A-19~~ -	~~3.3-1, 057~~ -	~~A~~ J
Fire sealed isolation joint	Flood barrier	Elastomer, rubber and other similar materials	Air – outdoor	Loss of sealing	Structures Monitoring	III.A6.TP-7	3.5-1, 072	B
Penetration seals	Fire barrier	Galvanized steel	Air – indoor controlled	None	None	VII.J.AP-2	3.3-1, 121	C
Penetration seals	Fire barrier	Galvanized steel	Air – indoor uncontrolled	None	None	III.B2.TP-8	3.5-1, 095	C

Penetration seals	Fire barrier	Elastomer, rubber, and other similar materials	Air – indoor uncontrolled Air – indoor controlled	Hardening Loss of strength Shrinkage	Fire Protection	VII.G.A-19	3.3-1, 057	A
Penetration seals (pipe trench)	Flood barrier	Elastomer, rubber and other similar materials	Air – outdoor	Loss of sealing	Structures Monitoring	III.A6.TP-7	3.5-1, 072	B

Table 3.5.2-10: Fire Rated Assemblies — Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Seals and gaskets (doors, manways, and hatches)	Fire barrier	Elastomer, rubber, and other similar materials	Air – outdoor	Hardening Loss of strength Shrinkage	Fire Protection	VII.G.A-19	3.3-1, 057	A
Seals and gaskets (doors, manways, and hatches	Flood barrier	Elastomer, rubber and other similar materials	Air – outdoor	Loss of sealing	Structures Monitoring	III.A6.TP-7	3.5-1, 072	B
Structural steel fireproofing	Fire barrier	Cementitious fireproofing **(e.g., Monocote, Albi-Duraspray)**	Air – indoor uncontrolled Air – indoor controlled	~~Hardening~~ ~~Loss of strength~~ ~~Shrinkage~~ **Loss of material** **Cracking**	Fire Protection	~~VII.G.A-19~~ =	~~3.3-1, 057~~ =	~~J, 2~~

Notes for Table 3.5.2-10

A. Consistent with component, material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.

B. Consistent with component, material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP has exceptions to NUREG-2191 AMP description.

C. Component is different, but consistent with material, environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.

E. Consistent with NUREG-2191 material, environment, and aging effect, but a different AMP is credited or NUREG-2191 identifies a plant-specific AMP.

J. Neither the component nor the material and environment combination is evaluated in NUREG-2191.

Plant-Specific Notes for Table 3.5.2-10

1. The components that are exposed to indoor controlled air are assumed to experience the same aging effects as if the components were exposed to indoor uncontrolled air.
2. ~~Component and material are different, but consistent with environment, aging effect and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.~~

Associated Enclosures:

None

RAI Letter Nos. ML18243A006 and ML18243A007 dated September 17, 2018

Monitoring of Neutron-Absorbing Materials Other Than Boraflex, GALL AMP XI.M40

RAI B.2.3.27-2

Background:

The Turkey Point UFSAR, Section 16.2.17, "Metamic Insert Surveillance Program," Revision 28, contains a description of the Metamic Insert Surveillance Program. This description includes items such as: criteria for the surveillance testing; test requirements; test frequency; acceptance criteria; and corrective actions, documentation and reporting based on test results. In addition, procedure 0-OSP-034.3, "Metamic Insert Surveillance," Revision 1, contains a similar description of requirements for the program, and also references UFSAR Section 16.2.17 for these requirements. Surveillance Requirement (SR) 4.9.14.2 in Technical Specification (TS) 3/4.9.14, "Spent Fuel Storage," also references UFSAR Section 16.2 for the surveillance program requirements.

Issue:

The staff reviewed the proposed UFSAR supplement, and it appeared that significant details of the program would be removed from the UFSAR. It is unclear whether these changes will impact the implementing procedure for the Metamic insert surveillance program.

Request:

Clarify whether the Metamic insert surveillance program, TS 3/4.9.14, or SR 4.9.14.2, will be impacted by the proposed changes to the UFSAR.

FPL Supplemental Response:

This response supplements the RAI response provided in Attachment 36 of Reference 1 with additional clarifications discussed during the November 15, 2018 NRC public meeting with FPL (Reference 2) and Attachment 10 of Reference 3.

This RAI supplement corrects the submittal dates for the Metamic license amendment listed in Commitment 31 of SLRA Table 17-3.

References:

1. FPL Letter L-2018-166 to NRC dated October 16, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application Safety Review Requests for Additional Information (RAI) Set 3 Responses (ADAMS Accession No. ML18296A024)
2. NRC Public Meeting Agenda dated November 5, 2018, Telecon Between NRC and FPL to Discuss Items Associated with the Safety Review of the Turkey Point Subsequent License Renewal Application (ADAMS Accession No. ML18315A004)

3. FPL Letter L-2018-223 to NRC dated December 14, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application Safety Review - November 15, 2018 Public Meeting Action Item Responses (ADAMS Accession No. ML18352A885)

Associated SLRA Revisions:

SLRA Appendix A, Table 17-3 is amended as indicated by the following text deletion (strikethrough) and text addition (red underlined font) revisions.

SLRA Table 17-3 is revised as follows:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
31	Monitoring of Neutron-Absorbing Materials other than Boraflex (17.2.2.27)	XI.M40	Continue the existing (previously only credited for Metamic® inserts) PTN Monitoring of Neutron-Absorbing Materials other than Boraflex AMP, including enhancement to: a) Inspect and test Metamic® inserts on a frequency dependent on the condition of the neutron-absorbing material and determined and justified with PTN-specific OE. For each Metamic® insert, the maximum interval between each inspection and between each coupon test is not to exceed 10 years, regardless of OE; b) Compare observations and measurements from the periodic inspections and coupon testing to baseline information or prior measurements and analyses for trending analysis, projecting future degradation, and projecting the future subcriticality margin of the SFP. This trending will also consider differences in exposure conditions, venting, spent fuel rack differences, etc. for each Metamic® insert or coupon. c) Initiate corrective actions (e.g., add neutron-absorbing capacity with an alternate material, or apply other available options) to maintain the subcriticality margin if the results from measurements and analysis indicate that the 5 percent subcriticality margin cannot be maintained because of current or projected degradation of the neutron-absorbing material.	Complete the initial Boral® testing and inspections no later than 6 months prior to the SPEO, i.e.: PTN3: 1/19/2032 PTN4: 10/10/2032 **Submit the license amendment no later than 18 months prior to the SPEO, i.e.:** **PTN3: 1/19/2031** **PTN4: 10/10/2031**

			d) Manage aging effects associated with the Boral® panels in the SFP cask area by monitoring for loss of material and changes in dimension that could result in loss of neutron-absorbing capability of the Boral® panels. Monitor parameters associated with the physical condition of the Boral® panels and include insitu gap formation, geometric changes as observed from coupons or in situ, and decreased boron-10 areal density, etc. The parameters monitored are directly related to determination of the loss of material or loss of neutron absorption capability of the Boral® panels. These parameters are monitored using coupon and/or direct in-situ testing of the Boral® panels to identify their associated loss of material and degradation of neutron absorbing capacity. The frequency of the inspection and testing depends on the condition of the neutron-absorbing material and is determined with site-specific OE; however, the maximum interval between these inspections is not to exceed 10 years, regardless of OE. Compare the Boral® inspection and testing measurements to baseline values for trending analysis and projecting future panel degradation and SFP subcriticality margins. The degradation trending must be based on samples that adequately represent the entire Boral® panel population, and the trending must consider differences in sample exposure conditions, differences in spent fuel cask racks, and possibly other considerations. The new Boral® panel surveillance acceptance criteria for the obtained inspection, testing, and analysis measurements must ensure that the 5 percent subcriticality margin for the SFP will be maintained, otherwise corrective actions need to be implemented. **e) Submit a license amendment to revise SR 4.9.14.2 to reference UFSAR Section 17.2.2.27.**	

Associated Enclosures:

None

NRC Audit Breakout Meeting Dated January 9, 2019

Discussion

During a recent audit by the NRC Staff, FPL was requested to provide additional information in the SLRA:

1. A discussion on transmission conductor loss of material due to wind-induced abrasion from sand-blasting, and
2. Guidance information related to the inspection of cables coated with flame retardant material recently included in the program basis document for the PTN Electrical Insulation for Electrical Cables and Connections not Subject to 10 CFR 50.49 EQ Requirements (XI.E1) AMP.

FPL Response:

The following numbered items correspond to the numbered items above.

1. SLRA Section 3.6.2.2.3 has been amended to include a discussion on transmission conductor loss of material due to wind-induced abrasion from sand-blasting.
2. SLRA Section B.2.3.38 has been amended to include guidance information related to inspection of cables coated with flame retardant material.

References:

None

Associated SLRA Revisions:

SLRA Sections 3.6.2.2.3 and B.2.3.38 are amended as indicated by the following text deletion (strikethrough) and text addition (red underlined font) revisions.

Insert the following in SLRA Section 3.6.2.2.3 after the "Loss of Material (Wear)" section on page 3.6-5 as follows:

Loss of Material Due to Wind Induced Abrasion (Sand Blasting)

Loss of material of transmission conductors and connections due to wind induced abrasion (sand blasting) could occur in desert areas, beaches or in locations where agricultural farming is prevalent. There are no industries within the 0-5-mile radius of Turkey Point, with approximately one-half of the total area within the 0-5 mile radius being formed by the coastal waters in Biscayne Bay. The coastal waters can be characterized as a shallow-bay with no beaches. A substantial proportion of the land area in the 0-5 mile radius is vacant. A section of agricultural land is located in the northwestern quarter of the 0-5 mile arc and is mostly used for truck crop farming. A review of plant-specific OE did not identify wind induced abrasion due to sand blasting or other contamination as an aging effect for transmission conductors and connections. Therefore, loss of material of transmission

conductors and connections due to wind induced abrasion (sand blasting) is not an aging effect requiring management at Turkey Point.

Hurricanes and other major wind events could cause foreign objects (such as siding and roofs) to get blown into transmission conductors and connections. Although these types of atmospheric disturbances are considered infrequent weather events rather than equipment aging, a review of plant-specific OE did not identify any instances where these events caused damage to transmission conductors and connections. Additionally, the site performs a detailed inspection of the switchyard after a hurricane to look for transmission conductor and connection conductor damage.

Therefore, loss of material due to wind induced abrasion-sand blasting of transmission conductors and connections due hurricanes and other major wind events is not an aging effect requiring management at Turkey Point.

Insert the following in SLRA Section B.2.3.38 as a new fourth paragraph on page B-275 as follows:

The inspection of the material condition of cable jackets in trays covered with fire retardant material will be performed by one or a combination of the following techniques:

- **Use scaffolding, ladders or other means to facilitate cable jacket inspection (e.g., if the underside of the cable tray is completely covered with flamastic, inspect cable jackets from the topside of the cable tray through gaps in the flamastic, as applicable).**
- **Use nearby junction boxes, pull boxes, and terminal boxes to view cable jackets as representative samples of cables within the tray.**
- **Use the optical zoom feature on a digital camera (or other device used for viewing distant objects) to inspect cable jackets through gaps in the fire retardant material from the floor.**
- **Use the cable jackets of newer cables laid on top of fire retardant material as representative samples of cables within the tray. Note: newer cables will require additional evaluation to determine their applicability, if this technique is used. Factors such as cable age and orientation within the tray require evaluation for suitability.**
- **Remove fire retardant material to inspect cable jackets if necessary.**

Note: if an adverse localized environment is identified, the inspection techniques noted above can be used to inspect the inaccessible area.

Associated Enclosures:

None