



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 21, 2018

Mr. Mano Nazaar
President, Nuclear Division
and Chief Nuclear Officer
Florida Power & Light Company
700 Universe Blvd
EX/JB
Juno Beach, FL 33408

SUBJECT: TURKEY POINT NUCLEAR GENERATING UNIT NOS. 3 AND 4 - PLAN FOR
THE ON-SITE REGULATORY AUDIT REGARDING THE SUBSEQUENT
LICENSE RENEWAL APPLICATION REVIEW (EPID NO. L-2018-RNW-0002)

Dear Mr. Nazar:

By letters dated January 30, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18037A812), February 9, 2018 (ADAMS Accession No. ML18044A653), February 16, 2018 (ADAMS Accession No. ML18053A123), March 1, 2018 (ADAMS Accession No. ML18072A224), and April 10, 2018 (ADAMS Accession Nos. ML18102A521 and ML18113A132), Florida Power & Light Company (FPL) submitted an application for subsequent license renewal of Renewed Facility Operating License Nos. DPR-31 and DPR-41 for the Turkey Point Nuclear Generating Unit Nos. 3 and 4 (Turkey Point) to the U.S. Nuclear Regulatory Commission (NRC) pursuant to Section 103 of the Atomic Energy Act of 1954, as amended, and part 54 of title 10 of the *Code of Federal Regulations*, "Requirements for renewal of operating licenses for nuclear power plants."

The NRC staff plans to conduct an on-site regulatory audit at the Turkey Point facility from August 27-31, 2018, in accordance with the enclosed regulatory audit plan. If you have any questions, please contact me by telephone at 301-415-3306 or by e-mail at Lois.James@nrc.gov.

Sincerely,

/RA/

Lois M. James, Senior Project Manager
License Renewal Project Branch
Division of Materials and License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure:
Audit Plan

SUBJECT: TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4 - PLAN FOR THE ON-SITE REGULATORY AUDIT REGARDING THE SUBSEQUENT LICENSE RENEWAL APPLICATION REVIEW (EPID NO. L-2018-RNW-0002) DATED AUGUST 21, 2018.

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**Plan for the
On-Site Regulatory Audit Regarding the
Turkey Point Nuclear Generating
Units 3 and 4
Subsequent License Renewal Application
August 27-31, 2018**

**Division of Materials and License Renewal
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission**

Enclosure

Plan for the On-Site Regulatory Audit Regarding the Turkey Point Nuclear Generating Units 3 and 4 Subsequent License Renewal Application

1. Background

By letters dated January 30, 2018, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18037A812), February 9, 2018 (ADAMS Accession No. ML18044A653), February 16, 2018 (ADAMS Accession No. ML18053A123), March 1, 2018 (ADAMS Accession No. ML18072A224), and April 10, 2018 (ADAMS Accession Nos. ML18102A521 and ML18113A132), Florida Power & Light Company (FPL, the applicant) submitted an application for subsequent license renewal (SLRA) of Renewed Facility Operating License Nos. DPR-31 and DPR-41 for the Turkey Point Nuclear Generating Unit Nos. 3 and 4 (Turkey Point) to the U.S. Nuclear Regulatory Commission (NRC) pursuant to Section 103 of the Atomic Energy Act of 1954, as amended, and part 54 of title 10 of the *Code of Federal Regulations*, "Requirements for renewal of operating licenses for nuclear power plants."

2. Regulatory Audit Base

This regulatory audit is scheduled for August 27-31, 2018, and is a follow-up to the in-office regulatory audit that was conducted June 18 through July 23, 2018. The scope of this audit focuses on areas where the NRC staff needs to observe, walkdown, and verify site information in order to complete its review of specific aging management programs (AMP), aging management review (AMR) line items, time limited aging analyses (TLAA), and the scoping results of systems, structures and components (SSCs), as discussed in Sections 3.1 through 3.7.

3. Regulatory Audit Scope

This regulatory audit is scheduled for August 27-31, 2018, and is a follow-up from the in-office regulatory audit which was conducted between June 18 and July 23, 2018. The scope of this audit focuses on areas where the NRC staff needed to observe, walkdown, verify site information in order to conclude the on-site regulatory audit. The specific areas of focus are provided below.

3.1 SLRA AMP B.2.3.17 Outdoor and Large Atmospheric Metallic Storage Tanks

Document Review. None.

Walkdowns. The staff plans to conduct the following equipment walkdowns.

- Demineralized Water Storage Tanks
- Condensate Storage Tanks
- Diesel Oil Storage Tanks
- Raw Water [fire water] Storage Tanks

- Primary Water Storage Tank

Interview. The staff plans to interview personnel involved in evaluating the need to manage aging effects for tank and piping providing a makeup source for the component cooling water surge tank

3.2 Containment and Plant Systems Branch Scoping and Screening Audit Plan

Document Review. The NRC staff will conduct document reviews and interviews with plant staff to evaluate the scoping SSCs in accordance with 10 CFR § 54

Walkdowns. The following walkdowns are needed to evaluate scoping of SSCs.

- Emergency diesel generator and safety-related electrical distribution areas
- Outside turbine building areas near safety-related equipment, such as the auxiliary feedwater pumps and condensate storage facilities
- Primary makeup water and accessible portions of the component cooling water system

3.3 SLRA AMP B.2.3.35, Structures Monitoring and SLRA AMP B.2.3.36, Water Control Structures

Document Review. The staff will complete the review of the Structures Monitoring Program Walkdown Reports for Units 3 and 4 and the engineering evaluation and corrective actions performed for the identified degradations.

- SSMP-WKDN-001A, Structures Monitoring Program Walkdown Report, Unit 3 (1355 pages)
- SSMP-WKDN-001B, Structures Monitoring Program Walkdown Report, Unit 4 (548 pages)
- PTN-ENG-SECS-17-019, 2017 PTN Structures Monitoring Program Report
- General ARs and Engineering evaluation associated with degradations documented above.

The staff also anticipates a discussion with the applicant on the gaps to effectiveness identified for the Structures Monitoring Program and the corrective actions taken to address them (e.g. AR 02239727) and a detailed discussion of the implementation of structures AMPs including tools/databases used.

Walkdowns. The staff plans to walk down the following areas

- Unit 3 & 4, Intake and Discharge Structures (e.g. degradations in U-3 North retaining wall, degradations of the structural steel beam in U-4 4A2 Well, degradations of the structural steel plate in 4P9B 4B1 Bay, degradations of the structural steel and concrete in Unit 3 Intake, and U-3 Fuel handling building exterior wall degradation)
- Unit 3 & 4, Turbine Buildings
- Unit 4, Spent Fuel Storage and Handling Building
- Yard Structures (e.g. tanks concrete foundations, anchors, supports)
- Unit 3 & 4, Emergency Diesel Generator Bldgs.
- Auxiliary Buildings: below grade concrete walls and basemat
- Cooling Canal Structures (CCS) – A sample of abutments and embankments that separate the CCS from Biscayne Bay

(i.e., East side including the section from the Turtle Point to Cellular Cofferdam and south face) *[Note: Applicant to provide drawing 5610-C-1168_2 and any associated (latest) survey (section H and Section Q)]*

Note: in general, walkdowns of identified degradations and including parts of structures with inaccessible portions, exposed to underground soil or groundwater, and the outside environment; walkdowns to be followed by selective review of AMP dispositioning of deficiencies.

- 3.4 SLRA TLAA Section 4.5, Concrete Containment Tendon Prestress, SLRA AMP B.2.3.31, ASME Section XI, Subsection IWL, and SLRA AMP B.2.2.3, Concrete Containment Tendon Prestress

Document Review. Review of existing legacy loss of prestress calculations and trending/lift-off force analyses, underlying bases of predicted lower limit evaluations, fulfillment of American Society of Mechanical Engineers (ASME) Section XI, Subsection IWL requirements (complete vertical slice sample), application of Regulatory Guide 1.35.1.

- 3.5 SLRA AMP B.2.3.9, Bolting Integrity

Document Review. Perform a review of drawings and sampling walkdowns of the following sample:

- Safety Injection System (SLRA Section 2.3.2.4 and Table 3.2.2-4))
- Chemical and Volume Control System (SLRA Section 2.3.3.4 and Table 3.3.2-4)
- Auxiliary Feedwater System (SLRA Section 2.3.4.3 and Table 3.4.2-3)

- Feedwater and Blowdown System (SLRA Section 2.3.4.2 and Table 3.4.2-2)
- Component Cooling Water System (SLRA Section 2.3.3.2 and Table 3.3.2-2)

3.6 SLRA TLAA Section 4.6, Containment Liner Plate, Metal Containments, and Penetrations Fatigue Analysis

Document Review. Containment Liner Plate and Containment Penetrations Fatigue Analyses (including personnel airlocks, equipment hatches, sleeves, dissimilar metal welds, and bellows)

- Staff to verify consistency with the GALL-SLR Report through onsite review of evaluations/calculations/analyses supporting 80-year TLAA disposition

3.7 Follow-up on July 2018 Audit Walkdowns

The staff plans to conduct focused walkdowns based on the following observations from the July 2018 audit walkdowns.

- While observing the intake cooling water system piping the applicant stated that as part of the “Coatings Program” they are applying “thermal spray” (liquid aluminum metal) on piping and bolting components to address degradation due to corrosion.
- The staff noted that closure bolting and structural bolting of the fire protection pump had corrosion that appears to be more than minor corrosion. The applicant stated that an AR was developed to address the degradation on the bolting. The staff requested the applicant to provide a hard copy of this AR and also to place it in the portal under a new folder titled “Audit Walkdown Requests.”
- The staff noted what appears to be more than minor corrosion on the FP system supports structural bolting.
- The staff noted more than minor degradation (cracking, spalling) of the concrete surrounding the FP supports; and corrosion of the structural bolts of several components in the intake structure. The staff noted that this type of degradation was common in the observed areas where the concrete and structural bolting is exposed to a wet environment.
- The staff noted that in the EDG 4A room a piece of the concrete slab near the EDG air start drain valve was broken and detached. The applicant stated that this portion of the concrete was cracked and maybe the concrete became detached during a work activity by the drop of a metal plate that’s near the concrete in question. The applicant also stated that there’s an AR associated with this. The staff requested the applicant to provide a hard copy of this AR and also to place it in the portal under a new folder titled “Audit Walkdown Requests.”
- The staff requested the applicant to identify manholes that could be visually inspected by the staff during the upcoming Audit by the end of August.
- The applicant stated that they are currently performing inspections and repair of the Unit 4 Fuel Handling Building exterior surface areas to address issues with spalling

of concrete. To perform these inspections they have installed scaffolds. The staff requested access (including the scaffolding) to observe this area of concrete degradation during the upcoming Audit at the end of August. The staff requested the applicant to provide a hard copy of associated ARs and also to place them in the portal under a new folder titled "Audit Walkdown Requests."

- During the walkdown of Unit 3 condenser pit the staff noted significant degradation on the interior wall below the condensate waterbox. The area is wet and the signs of degradation included: spalling of concrete, exposed and corroded rebar, and cracking of the concrete. The staff requested the applicant to provide a hard copy of associated ARs and also to place them in the portal under a new folder titled "Audit Walkdown Requests."
- During walkdown of the condenser waterbox area (outdoors) the staff noted some very narrow vertical cracks along the full height of the exterior surfaces of the concrete walls.
- During walkdown of the discharge structure the staff noted signs of corrosion on steel components (columns, beams, and structural bolts) that anchor into concrete pedestals that are in contact with water in the discharge structure. The staff requested the applicant to provide a hard copy of associated ARs and also to place them in the portal under a new folder titled "Audit Walkdown Requests." The staff requests that access to the walkway of the discharge structure be provided for enhanced observation on the upcoming audit at the end of August.

4. Team Assignments and Schedule

Team members and assignments are as follows:

Name	Area
Steve Jones, Senior Reactor Systems Engineer	Containment and Plant Systems Branch Scoping and Screening Audit Plan
William Holston, Senior Mechanical Engineer	SLRA AMP B.2.3.17 Outdoor and Large Atmospheric Metallic Storage Tanks
Alex Chereskin, Chemical Engineer	SLRA AMP B.2.3.17 Outdoor and Large Atmospheric Metallic Storage Tanks
Angela Buford, Structural Engineer	SLRA AMP B.2.3.35, Structures Monitoring SLRA TLAA Section 4.5, Concrete Containment Tendon Prestress SLRA AMP B.2.3.31, ASME Section XI, Subsection IWL SLRA AMP B.2.2.3, Concrete Containment Tendon Prestress SLRA AMP B.2.3.9, Bolting Integrity

Name	Area
Dan Hoang, Structural Engineer	SLRA AMP B.2.3.35, Structures Monitoring SLRA AMP B.2.3.36 Inspection of Water Control Structures Associated with Nuclear Power Plants
Juan Lopez, Structural Engineer	SLRA AMP B.2.3.35, Structures Monitoring SLRA TLAA Section 4.6, Containment Liner Plate, Metal Containments, and Penetrations Fatigue Analysis
Andrew Prinaris, Structural Engineer	SLRA TLAA Section 4.5, Concrete Containment Tendon Prestress SLRA AMP B.2.3.3, Concrete Containment Unbonded Tendon Prestress SLRA AMP B.2.3.31, ASME Section XI, Subsection IWL
Bill Rogers, Senior Reactor Engineer	Project Management
Brian Wittick, Branch Chief	Oversight

5. Logistics

The audit will be conducted on location at Turkey Point Nuclear Generating Units 3 and 4, the week of August 27, 2018. Entrance and exit briefings will be held at the beginning and end of the audit, respectively.

6. Special Requests

The NRC staff requests a suitable facility for the audit team to gather during the audit and to hold meetings between NRC staff and applicant personnel.

The NRC staff requests that there be a separate room for SLRA TLAA Section 4.5, Concrete Containment Tendon Prestress, SLRA AMP B.2.3.31, ASME Section XI, Subsection IWL, and SLRA AMP B.2.2.3, Concrete Containment Tendon Prestress in consideration of the numerous documents and discussions to be held.

7. Deliverables

An audit report should be issued to the applicant within 90 days from the end of the audit.