



Florida Power and Light Company, 9760 SW 344th St., Homestead, FL 33035

10 CFR 50.4
L-2012-090
March 5, 2012

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

Re: Turkey Point Unit 4
Docket No. 50-251
Special Report – Containment Tendon Corrosion Protection Medium Volume Reduction

In accordance with Technical Specifications 6.9.2 and 3.6.1.6, Action c, the attached Special Report is provided.

Should there be any questions regarding this information, please contact Robert J. Tomonto, Licensing Manager at (305) 246-7327.

Sincerely,

Michael Kiley
Vice President
Turkey Point Nuclear Plant

Attachment: Special Report - Containment Tendon Corrosion Protection Medium Volume Reduction

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

Special Report

Containment Tendon Corrosion Protection Medium Volume Reduction

Purpose

Florida Power and Light Company (FPL) submits this special report in accordance with Turkey Point Technical Specification (TS) 3.6.1.6, Action c, Containment Structural Integrity. Unit 4 entered Action c on February 21, 2012 because the acceptance criterion in Surveillance Requirement (SR) 4.6.1.6.1.e for corrosion protection medium (grease) volume in one containment tendon was not met.

Event Description and Analysis

On February 21, 2012, Action Request (AR) 1736751 was initiated during the Turkey Point Unit 4 containment tendon inspection. The AR was initiated because the absolute difference between the amount of grease removed from Unit 4 vertical tendon 56V02 and the amount of grease replaced exceeded 10% of the net duct volume. The total volume removed was 3 gallons. The total volume replaced was 23.78 gallons. This equates to a volume reduction of 23.23% of the net duct volume.

The containment structure is a post-tensioned reinforced concrete structure. The post tensioning feature of the structure is achieved by a system of vertical, dome and hoop tendons that are pre-loaded in accordance with structural requirements to attain a certain level of pre-stress to keep the concrete in compression. Each individual tendon consists of ninety ¼ inch diameter steel wires encapsulated inside a tendon sheathing that in turn is filled with corrosion preventing grease.

Turkey Point TS Section 3/4.6.1.6 establishes Limiting Conditions for Operation and SRs for the containment buildings, including grease leakage (SR 4.6.1.6.1.e [2 and 3]). The containment SRs state that structural integrity of the containment buildings shall be demonstrated in accordance with ASME Code Section XI, Subsection IWL, at the inspection frequencies specified in paragraphs IWL-2410 and 2420. The established inspection frequency for Turkey Point Units 3 and 4 is every 5 years.

The Tendon Surveillance IWL Inspection Program represents a systematic approach for assessing the continued operability and structural integrity of the containment post-tensioning system and concrete structure. During each surveillance period, as part of the scope of the inspection program, all accessible tendon caps are visually inspected for grease leakage and cap deformation. The Unit 3 and Unit 4 tendon inspection is currently in progress.

FPL has evaluated the condition. The purpose of the grease is to protect the tendons from the adverse effect of corrosion caused by moisture and water intrusion. Water intrusion is not suspected in this case based on tendon location with respect to building geometry. Air moisture can get past seals and enter the tendon sheath space. This is not of concern for two reasons. Firstly, the tendons are capped at the top and bottom preventing the free flow of moisture-laden air. If the initial sheathing space void is filled with air, then the possibility of continuous moisture condensation is limited. Secondly, when grease runs out of the sheathing, it leaves a film of grease on the tendon that prevents the formation of corrosion if condensation was to form and settle on tendon components. Grease residue was visually observed on the tendon and anchorage components which protected them. Corrosion was not observed on any of the tendon components due to the grease void.

For Unit 4 tendon 56V02, the reported grease volume reduction did not introduce any concerns pertaining to the operability or structural integrity of the subject tendon nor did it affect the integrity of the Unit 4 containment structure.

Cause

For Unit 4 vertical tendon 56V02, the probable cause of the difference in grease volume is leakage from the bottom end tendon cap due to degradation of the cap gasket.

Actions Taken

Tendon 56V02 end cap gaskets were inspected and replaced. The 56V02 tendon grease was replenished on February 21, 2012 restoring the required volume.