NRR-PMDAPEm Resource

From: Klett, Audrey
Sent: Monday, December 05, 2016 9:10 AM
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Subject: Turkey Point LAR 246 - CREVS TSs - Request for Additional Information (MF8221 and MF8222)

Hi Mitch,

By application dated August 3, 2016 (letter L-206-246), as supplemented by letter L-2016-183 dated October 20, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML16230A003 and ML16295A010, respectively), Florida Power & Light Company (the licensee) submitted a license amendment request (LAR) regarding the Turkey Point Nuclear Generating Unit Nos. 3 and 4 (Turkey Point 3 and 4) Technical Specifications (TSs). The proposed amendment would revise TS 3/4.7.5, "Control Room Emergency Ventilation System," to align more closely to NUREG-1431, Revision 4, "Standard Technical Specifications [STSs] for Westinghouse Plants," Volumes 1 and 2 (ADAMS Accession Nos. ML12100A222 and ML12100A228) while reflecting the current plant design.

During its review, staff from the U.S. Nuclear Regulatory Commission's (NRC's) Office of Nuclear Reactor Regulation, Radiation Protection and Consequence Branch (ARCB) and Balance of Plant Branch (SBPB) determined that additional information is required to complete its evaluation. The staff's request for additional information (RAI) is as follows. As discussed with Mr. Steve Catron of the licensee's staff on December 1, 2016, the NRC requests a response to the RAI by Friday, January 27, 2017.

ARCB-RAI-1

In the LAR, the licensee proposes to extend the allowed outage time (AOT) for TS 3/4.7.5, ACTION a.2 from seven days to thirty days and proposes to relocate the requirement to immediately suspend all irradiated fuel movement in the event of two inoperable condensing units from immediately upon the finding the inoperable condensing units to upon expiration of the seven day AOT. In addition, the licensee stated that:

> …relocating the requirement to immediately suspend irradiated fuel movement from the determination of inoperability to expiration of the AOT and extending the AOT for two inoperable condensing units from seven to thirty days maintains a commensurate level of safety when judged against the current regulatory standards established in the Westinghouse STS [Standard Technical Specifications] for an inoperable filter train and is thereby reasonable.

Westinghouse STS 3.7.11, "Control Room Emergency Air Temperature Control System (CREATCS)," provides temperature control for the control room following isolation of the control room and consists of two independent and redundant trains that provide cooling and heating of recirculated control room air. STS 3.7.11 ACTION A is entered when one CREATCS train is inoperable, and it allows thirty days to restore the inoperable CREATCS train to operable status. While in this ACTION, the remaining operable CREATCS train is adequate to maintain the control room temperature within limits.

Turkey Point's TS 3/4.7.5 requires the control room emergency ventilation system (CREVS) to be operable with two of three condensing units. TS 3/4.7.5 ACTION a.2 is entered when two condensing units are inoperable, and it requires immediately suspending all movement of irradiated fuel and, within 7 days, restoring at least one of the inoperable condensing units to operable status or to be in at least hot standby within the next six hours and in cold shutdown within the following thirty hours. TS 3/4.7.5 ACTION a.2 is entered when the required two condensing units become inoperable. TS 3/4.7.5 ACTION a.2 allows a loss of safety function

for 7 days and, therefore, is not equivalent to STS 3.7.11 ACTION A. It is equivalent to STS 3.7.11 ACTION E, which is entered when both CREATCS trains are inoperable while in modes 1 through 4, and it requires immediately entering limiting condition for operation (LCO) 3.0.3.

Considering Turkey Point's CREVS design, consistency with STS 3.7.11 could be met, for example, by requesting one of the following changes:

- Change the LCO to require three condensing units, and revise ACTION a.2 to state:

  With one or two condensing units inoperable, restore the inoperable air handling units to operable status within 30 days, or immediately suspend all movement of irradiated fuel and be in at least hot standby within the next 6 hours for one unit or 12 hours for both units and in cold shutdown within the following 30 hours.

- With the LCO unchanged, revise ACTION a.2 to state:

  With one required condensing unit inoperable, restore the inoperable air handling unit to operable status within 30 days, or immediately suspend all movement of irradiated fuel and be in at least hot standby within the next 6 hours for one unit or 12 hours for both units and in cold shutdown within the following 30 hours.

The staff requests the licensee to either (1) explain how a loss of CREVS function for 30 days while continuing to move irradiated fuel is consistent with Turkey Point's current design basis radiological dose consequence analyses, and provide the technical basis for allowing the loss of CREVS function for 30 days while continuing to move irradiated fuel, or (2) propose a TS change that is consistent with both STS 3.7.11 and Turkey Point's current design basis radiological dose consequence analyses.

ARCB-RAI-2

In the LAR, the licensee proposes to: (1) delete TS 3/4.7.5 ACTION c, including its footnote ++ and its applicability in modes 5 and 6; (2) revise the current LCO applicability from all modes to modes 1 through 6 and during movement of irradiated fuel assemblies; and (3) apply the revised LCO applicability to ACTIONs a.1 through a.7 and b. Currently, TS 3/4.7.5 ACTION c applies in modes 5 and 6 (i.e., cold shut down and refueling, respectively) and requires immediate suspension of all operations involving core alterations, movement of irradiated fuel in the spent fuel pool, or positive reactivity changes.

The following technical basis was provided in the technical evaluation section for this change:

> Furthermore, TS ACTION 3.7.5.c requires the immediate suspension of irradiated fuel movement, core alterations and positive reactivity changes for an inoperable CREVS. However, in keeping with the format of the Westinghouse STS, the immediate suspension of core alterations and positive reactivity changes are not STS specified ACTION(s) and thereby should be removed from TS 3.7.5…
>
> …and expanding their applicability to all plant MODES during which irradiated fuel movement might occur, maintains a commensurate level of safety when judged against the current regulatory standards established in the Westinghouse STS for an inoperable CREVS train in Modes 5 and 6 and is thereby reasonable.

The technical evaluation provided does not explain how the proposed change is consistent with the accident analyses provided in Turkey Point's updated final safety analysis report. Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.36 requires that the technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to § 50.34. Therefore, in accordance with 10 CFR 50.36, the staff is reviewing this change to determine if it is consistent with Turkey Point's NRC-approved DBAs' radiological consequences - specifically, how core

alterations are accounted for in the fuel handling accident. Turkey Point TSs define core alterations as the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel.

The NRC staff is concerned that a dropped source, new fuel assembly, or reactivity control component (or any other item allowed to be moved by core alterations) could damage fuel, thus creating a radioactive source term larger than what is currently analyzed. Please provide a comparison of the number of fuel rods damaged from dropping any items allowed to be moved by core alterations to that assumed in the current fuel handling accident (i.e., that the source term created by dropping any item allowed to be moved by core alterations is equal to or less than that assumed in the fuel handling accident analysis, which is a failure of one complete fuel assembly).

ARCB/SBPB-RAI-3

In the LAR, the licensee proposes to revise TS 3/4.7.5 ACTION a.5 to: (1) allow movement of irradiated fuel upon verification that mitigating actions ensure Control Room Envelope (CRE) occupant radiological and chemical hazards will not exceed limits when the CREVS recirculation filter train is inoperable, (2) delete the required action to immediately initiate use of the compensatory filtration unit upon the CREVS recirculation filter train becoming inoperable, and (3) add a required action to immediately suspend all movement of irradiated fuel if the requirements of TS 3/4.7.5 ACTION a.5 are not met.

In the case of an inoperable CREVS filter train (discussed in the LAR under section 3.2), the licensee states that it would like to make the requirement to immediately initiate use of the compensatory filtration unit in TS 3/4.7.5 ACTION a.5, a recommendation instead of a requirement, so that it may use alternative mitigating actions. However the alternative mitigating actions are not explicitly stated in the LAR; rather, all that is stated is that alternative mitigating actions may be necessary in the event the compensatory filtration unit cannot be manually aligned within the 24 hours allotted before the Unit(s) must commence shutdown and that station procedures would specify alternative process or engineering controls that manage the radioactivity in the air. The licensee then stated that consistent with 10 CFR 20.1701 and
10 CFR 20.1702, these alternative controls would not include the use of potassium-iodide pills and self-contained breathing apparatus respirators except as a last resort in accordance with emergency operating procedures. In addition, the licensee stated that the compensatory filtration unit is a fully-qualified backup to the emergency filtration unit and will remain the preferred mitigating action in the event of an inoperable CREVS filter train.

The NRC staff does not agree with the licensee's statement that the compensatory filtration unit is a fully qualified backup. In Inspection Manual Chapter 0326, "Operability Determinations & Functionality Assessments for Condition Adverse to Quality or Safety," the NRC defines "fully qualified" as:

> 03.04 Fully Qualified: An SSC [Structure, System, and Component] is fully qualified when it conforms to all aspects of its CLB [current licensing basis], including all applicable codes and standards, design criteria, safety analyses assumptions and specifications, and licensing commitments. An SSC is considered "not fully qualified," i.e., degraded or nonconforming, when it does not conform to all aspects of its CLB, including all applicable codes and standards, design criteria, safety analyses assumptions and specification, and licensing commitments.

In 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," Section 54.3, the NRC defines the CLB as:

> *Current licensing basis* (CLB) is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and in effect. The CLB includes the NRC regulations contained in 10 CFR parts 2, 19, 20, 21, 26, 30, 40, 50, 51, 52,

54, 55, 70, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions; and technical specifications. It also includes the plant-specific design-basis information defined in 10 CFR 50.2 as documented in the most recent final safety analysis report as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports.

Turkey Point's updated final safety analysis report (UFSAR) states that the design basis of the CREVS with respect to radiological emergencies is to be capable of ***automatically starting under accident conditions to initiate emergency control room pressurization and filtration***, assuming the occurrence of a single failure. Turkey Point's UFSAR Chapter 14 states the automatic initiation signals and timing for automatically initiating CREVS emergency mode operation for the Loss of Coolant Accident (LOCA), Fuel Handling Accident in containment, Main Steam Line Break Accident, Steam Generator Tube Rupture Accident (SGTR), Reactor Coolant Pump Shaft Seizure Accident, and Rod Cluster Control Assembly ejection Accident. The automatic initiation signal response time ranges from 30 seconds for LOCA to 321 seconds for SGTR. This information is consistent with the NRC staff's safety evaluation dated June 23, 2011 (ADAMS Accession number ML110800666), which approved the alternative source term (AST) in amendments numbers 244 and 240. In the NRC staff's safety evaluation for the AST, the NRC staff found the compensatory backup filtration unit to be acceptable because it met the structural design requirements, and upon the CREVS filter train becoming inoperable, the compensatory filtration unit is immediately initiated thereby meeting the radiological design requirements assumed in the radiological consequence analysis. The TS requirement places the compensatory filtration unit in use and therefore meets the automatic starting criteria because it's in use prior to occurrence of an accident.

The NRC staff does not consider Turkey Point's compensatory filtration unit to be fully qualified unless it can, in conjunction with the CREVS, meet all the automatic initiating requirements assumed in the Turkey Point radiological consequences analyses.

Westinghouse STS 3.7.10, "Control Room Emergency Filtration System (CREFS)," design has two independent, redundant, trains that recirculate and filter the air in the control room envelope. Therefore, when one CREFS filter train is inoperable, seven days are allowed to restore the CREFS filter train to operable status, because the remaining CREFS train meets the requirements in the accident analysis and is adequate to perform the CRE occupant protection function. If two CREFS filter trains are inoperable in modes 1 through 4 then STS requires immediate entry into LCO 3.0.3 because the CREFS may not be capable of performing the intended function and the unit is in a condition outside the accident analysis.

Please explain:

A. Has the design of the compensatory filtration unit changed from manual initiation to automatic initiation? Can CREVS emergency mode be automatically initiated to use the compensatory filtration unit, allowing it to meet all the requirements assumed in the radiological consequences analyses? If so, explain the design changes to the CREVS which would support a 7-day AOT.

B. Provide the alternative mitigating actions and explain how they meet all the requirements assumed in the Turkey Point radiological consequences analyses such that they support a 7-day AOT.

C. Given the differences between the STS and Turkey Point designs, the LAR did not address the acceptability of the proposed changes. Please explain why alternative mitigating actions would be necessary?

ARCB-RAI-4

Turkey Point's TS 3/4.7.5 ACTIONs a.1 through a.9, and b contain the following sentence:

> If this ACTION applies to both units simultaneously, be in HOT STANDBY within 12 hours and in COLD SHUTDOWN within the following 30 hours.

In the LAR, the licensee states that the changes are proposed in order to align TS 3/4.7.5 more closely with Westinghouse STS 3.7.10 of NUREG 1431, Revision 4. However, if the sentence above were in STS, it would mean there is a requirement anytime the ACTION applied to both units simultaneously, that both units be in hot standby within 12 hours and in cold shutdown within the following 30 hours. Because Turkey Point is a dual unit site with a single shared control room, the CREVS is common to both units and, therefore, the TS sentence above, if applied as it relates to STS, would require both units to be in hot standby within 12 hours and cold shutdown within the following 30 hours any time Turkey Point met the conditions to enter ACTIONs a.1 through a.9 and b while both units are in modes 1 through 4. It would essentially negate the actions to immediately suspend all movement of irradiated fuel and, restore the inoperable equipment to operable status within the AOT. As applied to Turkey Point, the staff would have written the STS as shown below for ACTION a.1:

> With one air handling unit inoperable, immediately suspend all movement of irradiated fuel and, within 7 days, restore the inoperable air handling unit to operable status or be in at least hot standby within the next 6 hours for one unit or 12 hours for both units and in cold shutdown within the following 30 hours.

The NRC staff would have written it this way because it takes into account that CREVS is a common system to both plants and it allows 7 days to restore the inoperable air handling unit to operable status while suspending all irradiated fuel movement before requiring the units to be shutdown. In addition, it allows more time for a dual unit shutdown.

Because the licensee stated that the purpose of this LAR is to more closely align with STS 3.7.10, please consider revising TS 3/4.7.5 ACTIONs a.1 through a.9, and b to be consistent with STS 3.7.10, which would avoid any misinterpretations of these ACTIONs.

SBPB-RAI-1:

The LAR states the following:

> The changes are proposed in order to align Technical Specification (TS) 3/4.7.5 more closely with Westinghouse Standard Technical Specifications (STS) 3.7.10, Revision 4. Consequently, the requirements to immediately suspend irradiated fuel movement are relocated, in most cases, to coincide with the commencement of Unit(s) shutdown in the event the allowable outage time (AOT) cannot be met for an inoperable CREVS component or CRE boundary. As such, the proposed license amendment aligns the current TS 3.7.5 ACTION(s) with STS 3.7.10 ACTION(s) for an inoperable CREVS train.

The staff's review indicates the following:

Turkey Point TS 3/4.7.5 is currently not in the improved STS format. However, it covers the aspects of two STSs in Westinghouse STS: TS 3.7.10 for CREFS and TS 3.7.11 for CREATCS. The current ACTIONs a.1 to a.8 in Turkey Point's TS 3/4.7.5 all have 7 days to restore the inoperable equipment. The proposed changes in the LAR will retain the 7-day restoration time for the inoperable equipment for all the ACTIONs, except a.2. The LAR proposes to change the restoration time for the inoperable equipment (condensers) to 30 days. Based on staff's review, it appears that the proposed changes to ACTIONs a.1 to a.8 (except a.2) and ACTIONs b.1 and b.2 are analogous to STS 3.7.10, ACTION A, and the proposed change to ACTION a.2 is analogous to STS 3.7.11, ACTION A. Therefore, the staff believes that the inoperable equipment in all the ACTIONs, except ACTION a.2, will impact the CREFS (and possibly the CREATCS) part of the Turkey Point CREVS, whereas the inoperable equipment in ACTION a.2 will only impact the CREATCS portion of Turkey Point CREVS.

Please confirm the staff's understanding of the proposed changes, or provide clarification as necessary.

SBPB-RAI-2

STS 3.7.10 ACTION C is applicable in MODES 1, 2, 3, and 4, and it requires entry into Mode 3 within 6 hours and entry into Mode 5 within 36 hours. STS 3.7.10 ACTION D is applicable in MODES 5 or 6, or during movement of irradiated fuel assemblies, and it requires to place OPERABLE CREFS train in emergency mode or to suspend movement of irradiated fuel assemblies. In the proposed TS 3/4.7.5, ACTIONs a.1 through a.7 and ACTION b, entry into hot standby (Mode 3) is required within 12 hours if ACTIONs are applied to both units simultaneously. This is inconsistent with similar conditions in STS 3.7.10, ACTIONs C and D.

Please propose changes to align TS 3/4.7.5 with STS 3.7.10, or justify the acceptability of the deviations from STS 3.7.10.

SBPB-RAI-3

TS 3/4.7.5 ACTIONs a.1 to a.7, and b contain the following:

> …restore the inoperable to OPERABLE status or, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. If this ACTION applies to both units simultaneously, be in HOT STANDBY within 12 hours and in COLD SHUTDOWN within the following 30 hours.

Because Turkey Point 3 and 4 have a common Control Room, the presumption would be that most, if not all, of these ACTIONs will apply to both units simultaneously.

Please explain, for each ACTION, how it is determined whether the statement applies to a single unit or to both units simultaneously? If an ACTION always applies to both units simultaneously, propose revised ACTIONs.

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