NRR-DMPSPEm Resource

From: Wiebe, Joel
Sent: Friday, February 1, 2019 9:13 AM
To: Mitchel Mathews
Cc: David Gullott
Subject: Preliminary RAIs for Byron One-time Extension of Completion Time 3.8.1, A.2

The purpose of preliminary RAIs is to ensure that the questions are clear and understandable. Let me know by February 8, 2019, if a clarification call is necessary.

By letter dated August 10, 2018 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML18226A097), as supplemented by letter dated December 21, 2018 (ADAMS Accession No. ML18355A699), Exelon Generation Company, LLC (EGC) submitted a risk-informed license amendment request for a one-time extension to the Completion Time (CT) for Technical Specification (TS) 3.8.1, "AC Sources – Operating," Required Action A.2 from 72 hours to 60 days, and to add License Conditions to Appendix C. In order to complete its review, the U.S. Nuclear Regulatory Commission (NRC) staff requests a response to the questions below.

Regulatory Basis

- Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," requires that preventive maintenance activities must be sufficient to provide reasonable assurance that Structures Systems and Components are capable of fulfilling their intended functions. As it relates to the proposed extended AOT to support the onsite Class 1E AC distribution systems, 10 CFR 50.65(a)(4) requires the assessment and management of the increase in risk that may result from proposed maintenance activities.

- RG 1.177, Revision 1 (May 2011), "An Approach for Plant-Specific, Risk-Informed Decision-making: Technical Specifications," (ADAMS Accession No. ML100910008) describes an acceptable risk-informed approach for assessing proposed permanent TS changes in AOTs as well as one-time only changes. In addition, this RG provides risk acceptance guidelines for evaluating the results of such assessments. In addition to permanent TS changes, RG 1.177 also addresses the risk metric requirements for one-time TS changes such as the one-time, temporary 60-day CT extension proposed in the licensee's LAR dated August 10, 2018, as supplemented by submittal dated December 21, 2018. The acceptance guidelines for one-time TS changes are described in RG 1.177, Section 2.4, "Acceptance Guidelines for Technical Specification Changes," as follows:

  > For one-time only changes to TS CTs, the frequency of entry into the CT may be known, and the configuration of the plant SSCs may be established. Further, there is no permanent change to the plant CDF or LERF, and hence the risk guidelines of Regulatory Guide 1.174 (Ref. 11) cannot be applied directly. The following TS acceptance guidelines specific to one-time only CT changes are provided for evaluating the risk associated with the revised CT:
  >
  > 1. The licensee has demonstrated that implementation of the one-time only TS CT change impact on plant risk is acceptable (Tier 1):
  >
  >   - ICCDP of less than 1.0×10^{-6} and an ICLERP of less than 1.0×10^{-7}, or
  >
  >   - ICCDP of less than 1.0×10^{-5} and an ICLERP of less than 1.0×10^{-6} with effective compensatory measures implemented to reduce the sources of increased risk.

2. The licensee has demonstrated that there are appropriate restrictions on dominant risk-significant configurations associated with the change (Tier 2).

3. The licensee has implemented a risk-informed plant configuration control program. The licensee has implemented procedures to utilize, maintain, and control such a program (Tier 3).

- NUREG-0800, Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions," dated February 2012 (ADAMS Accession No. ML113640138) provides guidance to the NRC staff in reviewing LARs for licensees proposing a one-time or permanent TS change to extend an EDG Allowed Outage Time (AOT) beyond 72 hours. The BTP 8-8 emphasizes that more defense-in-depth is needed for SBO scenarios which are more likely to occur as compared to the less likely occurrence of the large and medium size loss-of-coolant accident (LOCA) scenarios.

Request for Additional Information (RAI) 01 – Clarification on Realigning 4.16 kV Buses

In the LAR, the licensee proposes to realign the 4.16kB safety buses from the emergency diesel generators (EDGs) to the Unit No. 2 unit auxiliary transformers (UATs). The understanding of the NRC staff is these actions will require additional operator actions that were not considered in the licensee's risk assessment in the LAR. In addition, Regulatory Guide (RG) 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," dated May 2011 (ADAMS Accession No. ML100910008), Section A-1.3.1.1 states, in part:

> If other components are reconfigured while the component is down, these reconfigurations can be incorporated in estimating R_1 or ΔR_1, using the PRA. If other components are tested before repair or if maintenance is carried out on the downed components, the conduct of these tests and their outcomes also can be modeled.

Therefore, the NRC staff believes the risk associated with the operator actions to realign the 4.16kV safety buses should be included in the risk assessment, and requested the licensee to supplement its LAR in letter dated December 12, 2018 (ADAMS Accession No. ML18324A807). In letter dated December 21, 2018 (ADAMS Accession No. ML18355A699), the licensee's response to NRC Question 2 part 1 stated, "the actions to realign the two 4.16kV safety buses from the EDGs to the Unit No. 2 UATs will occur while the plant is at-power, so do not fall within the scope of the PRA which models initiating events and mitigating actions in response to those initiating events."

The licensee's response to NRC Question 2 part 2 stated, "However, the negative outcome of failing this action is considered to be a plant trip." Based on the response to NRC Question 2 part 2, the NRC staff understands that the failure to realign the two 4.16kV safety buses from the EDGs to the Unit No. 2 UATs will result in a plant trip and therefore falls in the scope of the licensee's probabilistic risk assessment (PRA). This is not in alignment with the licensee's response to NRC Question 2 part 1, yet it is in alignment with the licensee's response to NRC Question 2 part 2. Clarify this apparent discrepancy in the response to NRC Question 2 part 1 and NRC Question 2 part 2.

RAI 02 – Risk Management Actions (RMAs)

Section 2.4 of RG 1.177 states in part, "The licensee has demonstrated that implementation of the one-time only TS CT change impact on plant risk is acceptable (Tier 1): incremental conditional core damage probability (ICCDP) of less than 1.0E-5 and incremental conditional large early release probability (ICLERP) of less than 1.0E-6 with effective compensatory measures implemented to reduce the sources of increased risk." In the LAR supplement, the licensee provided that the maximum allowed extension time while in the UAT configuration for Unit 2 would be 73 days and are requesting a one-time extension of 60 days, with 73 days being the amount of time it would take for ICCDP to reach 1.0E-5.

In LAR Attachment 1, Section 4.3.2, the licensee provided compensatory actions that will be implemented during the extended TS CT configuration. In LAR Attachment 7, Table 3.2-3, the licensee also provided transient sequences that contribute to the most significant risk increases during the extended TS CT configuration. The NRC staff noted that the top sequences involve Emergency Core Cooling System (ECCS) equipment, and service water (SX) equipment. However, the NRC staff did not find any compensatory measures or risk-management actions to protect ECCS and SX equipment or to stage equipment as a measure of defense-in-depth and risk reduction in the event the ECCS and SX equipment becomes inoperable during the extended TS CT configuration. Based on these observations, provide the following information:

a. Provide risk-management actions and/or compensatory measures that will protect the ECCS and SX SSCs during the extended TS CT configuration, or justify why risk-management actions and/or compensatory measures are not needed.

b. Clarify if additional equipment will be staged (e.g., portable generators, portable pumps, FLEX pumps, etc.) to provide additional layers of defense-in-depth and risk reduction during the extended TS CT configuration.

RAI 03 – Configuration Risk Management Program (CRMP)

In regards to the Tier 3 CRMP, Section 2.3 of RG 1.177 states, “to support TS changes, a viable program would be one able to uncover risk-significant plant equipment outage configurations in a timely manner during normal plant operation.” Therefore, the licensee should have a CRMP and CRMP assessment tool that can manage risk during the extended TS CT configuration.

The licensee provides a description of the Byron Station CRMP in LAR Attachment 1, Section 4.3.3. However, the licensee does not provide a description of the CRMP assessment tool that will be used to manage risk during the extended TS CT configuration. In addition, the licensee states in the LAR supplement Attachment 1 that “the site auxiliary transformers (SATs) are not explicitly modeled in the PRA.” The NRC staff is unclear if the SATs being removed from service is explicitly modeled in the CRMP assessment tool, and how the CRMP assessment tool will manage the increase in risk if the SATs are removed from service. Therefore, provide the following information in regards to the CRMP tool at Byron Station:

a. Explain how the Unit No. 2 SATs are modeled in the CRMP assessment tool at Byron Station.

b. If the Unit No. 2 SATs are not modeled, explain how the increase in risk will be managed during the extended TS CT configuration.

RAI 04 – Regulatory Commitments

Branch Technical Position (BTP) 8-8, “Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions,” provides guidance for TS CTs for both onsite and offsite power sources. Conformance to BTP 8-8 can be achieved through a number of regulatory commitments. One of the regulatory commitments in BTP 8-8 is that preplanned maintenance will not be scheduled if severe weather conditions are anticipated.

In LAR Attachment 1, Section 4.4, the licensee states they are not providing any commitments associated with this expectation. Also, in LAR Attachment 6, the licensee provides a table of regulatory commitments, and the above regulatory commitment is not provided in LAR Attachment 6. The NRC staff recognizes if SAT 242-1 were to fail, the extended TS CT configuration would be considered emergent and not pre-planned, however the licensee does not provide information on how other preplanned maintenance related to onsite or offsite power sources will be treated. Therefore, provide the following information:

a. Explain how preplanned maintenance on any onsite or offsite power sources will be treated if severe weather conditions are anticipated during the extended TS CT configuration, provide any additional risk-management actions and compensatory measures that would be required, and update the regulatory commitments in the table in LAR Attachment Table 6 as applicable.

b. If preplanned maintenance will be scheduled, then provide justification on how the licensee meets BTP 8-8 for this expectation.

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