



Pre-Submittal Meeting with NRC
regarding UFSAR change to clarify
separation requirements for ERCW electrical load groups

February 13, 2018

Agenda

- Purpose
- Background
- Regulatory Requirements
- NRC Violations
- Proposed Changes
- Schedule
- Questions

Purpose

To discuss proposed changes to the Sequoyah Nuclear Plant (SQN) Updated Final Safety Analysis Report (UFSAR) to clarify separation requirements for Essential Raw Cooling Water (ERCW) Electrical Load Groups

Background

- SQN implemented a design change to remove the existing mechanical (Kirk Key) interlocking scheme from the feeder breakers and tie breakers for ERCW Motor Control Center (MCC) 1A-A, 1B-B, 2A-A and 2B-B.
- The physical control of the ERCW MCC Feeder breakers is replaced with administrative controls.
- While redundancy is maintained through independent trains, an operator could potentially parallel two standby power sources due to the removal of the mechanical interlock.

Background

- TVA conservatively considers that the removal of the mechanical interlock reduces system diversity and separation.
- In accordance with 10CFR50.59 and Section 4.3.2 of NEI 96-07, TVA has determined that this change requires prior NRC approval.

Regulatory Requirements

- Section 8.3.1.1 of the SQN FSAR states that, “The Standby Power System serving each unit is divided into two redundant load groups (power trains). These power trains (train A and train B for each unit) supply power to safety-related equipment.”
- RG 1.6 requires an interlock “If means exist for manually connecting **redundant load groups** together.” Because SQN’s redundant load groups are defined as A and B train, and the affected breakers connect boards of the same train, the potential error introduced by this DCN would not connect redundant load groups, and there is no conflict between this design and the RG 1.6 requirement.

Regulatory Requirements

- RG 1.81 prohibits SSCs important to safety “from being shared among nuclear units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions.”
- Section 9.2.2.3 of the SQN UFSAR states, “sharing of this system by the two nuclear units does not introduce factors that prevent the system from performing its required function for plant design basis condition.”

NRC Violations

- NRC Non-Cited Violation 05000327, 328/2015007-02: Failure to Meet Design Basis Requirements to Provide Interlocks Between Shared Onsite Emergency and Shutdown AC Electric Systems
- Severity Level IV Violation 05000327, 328/2015007-03: Failure To Request A License Amendment Prior to Removing Interlocks from Shared Onsite Emergency and Shutdown AC Electric Systems

Proposed UFSAR Change

- In order to clarify the normal and alternate power supply for ERCW, UFSAR Section 9.2.2.2 will be revised as follows:
 - From:
 - Since there are two independent power trains, four of the eight ERCW pumps will be assigned to train A and four to train B. Two each of the traveling screens, screen wash pumps, and strainers will be assigned to the power train corresponding to that of the ERCW pumps which this equipment serves.
 - To:
 - Since there are two independent power trains, four of the eight ERCW pumps will be assigned to train A (**1A/2A**) and four to train B (**1B/2B**). **Likewise, two of the associated ERCW MCCs are assigned to train A and two to train B. Because the mechanical loads powered from each power train feed into a header/piping system that is shared among both units, there is no need to have unit separation on the associated power sources. The normal and alternate power source for each ERCW MCC are provided by the same train from each unit.** Two each of the traveling screens, screen wash pumps, and strainers will be assigned to the power train corresponding to that of the ERCW pumps which this equipment serves.

Justification of Proposed UFSAR Change

- The mechanical interlock was provided as part of the original breaker. It was not part of the original plant design requirement.
- The design of the 480V ERCW MCCs is in compliance with IEEE Std. 308-1971, Regulatory Guide (RG) 1.6, Rev 0 and RG 1.81, Rev 1.

SQN LAR – Timeline

- 2/28/18 - LAR submitted
- 2/28/19 – NRC Approval

Simplified One-Line Diagram of 480V ERCW MCCs Power Sources and Load Groups



