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Special Report

August 15, 2014

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Special Report per Selected Licensee Commitment 16.9.9 Auxiliary Service Water (ASW) System and Main Steam Atmospheric Dump Valves and Oconee Transition from the Station ASW System to the Protected Service Water System

In accordance with Selected Licensee Commitment (SLC) 16.9.9, please find attached a copy of a report which details the outage required for replacement of the Oconee Nuclear Station (ONS) Station Auxiliary Service Water (ASW) System with the Protected Service Water (PSW) System.

SLC 16.9.9 requires that a report be submitted to the Nuclear Regulatory Commission (NRC) if the Station ASW System and the Standby Shutdown Facility (SSF) ASW System are inoperable for greater than 7 days or if the Station ASW System is inoperable and the SSF ASW System is OPERABLE for greater than 30 days. In this case, the Station ASW System is being completely removed and replaced with the PSW System. The extensive and complicated nature of this work activity will exceed the 30 day allowed outage time.

A revised SLC 16.9.9 will be implemented to address PSW functionality once the PSW pumps and header are installed and functional (Milestone 4 as referenced in the Duke Energy letter to the NRC dated March 11, 2013). The SLC will provide details associated with system functionality requirements as well as surveillance requirements to test installed portions of the system. PSW Technical Specifications will be implemented after startup from each unit's refueling outage after completion of PSW Modifications (Milestone 5 as referenced in the Duke Energy letter to the NRC dated March 11, 2013) and after all of the PSW system equipment installed has been tested. The SLC will be revised at that time to remove any requirements associated with the PSW system that are addressed by the Technical Specifications.

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No NRC commitments are contained in this report. The assessment and management of risk during the replacement of Station ASW with PSW ensures that this activity is considered to be of no significance with respect to the health and safety of the public. If there are any questions, please contact Timothy D. Brown, PSW Licensing Manager, at (864) 873-3952.

Sincerely,

Scott L. Batson
Site Vice President
Oconee Nuclear Station

Attachment

CC: Mr. Victor M. McCree, Administrator, Region II
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Mr. Eddy Crowe
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ATTACHMENT

Oconee Transition from Station Auxiliary Service Water System to Protected Service Water System

Special Report
Oconee Transition from the Station Auxiliary Service Water System to the Protected Service Water System

Purpose

In accordance with Selected Licensee Commitment (SLC) 16.9.9, Auxiliary Service Water (ASW) System and Main Steam Atmospheric Dump Valves, this report outlines the plans and procedures that Oconee Nuclear Station (ONS) will use during the replacement of the Station Auxiliary Service Water (ASW) System with the Protected Service Water (PSW) System that started August 13, 2014.

System Description

Auxiliary Service Water System

Station Auxiliary Service Water (ASW) System provides defense-in-depth for decay heat removal (DHR) following a concurrent loss of the Main Feedwater (MFDW) System, Emergency Feedwater (EFW) System and DHR System for any or all three of the ONS units.

The Station ASW system is credited as a source of DHR for tornado mitigation and loss of all external water supply events. DHR is accomplished by supplying water to the steam generators through the EFW headers. The water supply for the ASW Systems is provided by the Oconee Unit 2 Condenser Circulating Water (CCW) System Intake.

Protected Service Water System

The PSW System is designed as a standby system for use under emergency conditions. The PSW system provides additional "defense in-depth" protection by serving as a backup to existing safety systems and as such, the system is not required to comply with single failure criteria. The PSW system is provided as an alternate means to achieve and maintain safe shutdown conditions for one, two or three units following certain postulated scenarios. The PSW system reduces fire risk by providing a diverse power supply to power safe shutdown equipment in accordance with NFPA 805 safe shutdown analyses. The PSW system requires manual activation in the control room and can be activated if emergency systems are unavailable.

The PSW system provides a diverse means to achieve and maintain safe shutdown by providing secondary side DHR, Reactor Coolant System (RCS) pump seal cooling, RCS primary inventory control, and RCS boration for reactivity management following plant scenarios that disable the 4160V essential electrical power distribution system. Following achieving safe shutdown, a plant cooldown is initiated within 72 hours of event initiation. PSW is not an Engineered Safety Features Actuation System (ESFAS) and is not credited to mitigate design basis events as analyzed in UFSAR Chapters 6 and 15.

Core DHR is provided by feeding the steam generators from the PSW pumps (booster and high head pumps) via PSW flow control valves. Core reactivity is controlled in a safe manner by injecting borated water from the borated water storage tank (BWST) into the RCS to maintain

adequate shutdown margin. RCS inventory control is provided by existing plant equipment that can be selectively powered from the PSW Electrical Distribution System.

For complete details associated with the PSW system, see the final Safety Evaluation for Amendment 386, 388, and 387.

Selected Licensee Commitments

Condition A of Selected Licensee Commitment (SLC) 16.9.9 allows the Station ASW system to be out of service for 30 days if the SSF ASW system is operable.

Condition B of SLC 16.9.9 allows the ASW system and the SSF ASW system to be simultaneously inoperable for a period of 7 days.

Condition C of SLC 16.9.9 states if the required actions and associated completion times are not met within the specified time periods, then a report is to be written and submitted to the Nuclear Regulatory Commission (NRC) within 30 days outlining plans and procedures to be used to provide for the loss of the system.

When Station ASW is taken out of service, Condition A of SLC 16.9.9 will be entered. The work associated with demolishing Station ASW and implementing PSW is expected to take greater than 30 days; therefore a special report is being provided to the NRC outlining plans and procedures to be used to provide for loss of the system.

ASW System Transition to PSW

Prior to the Station ASW Switchgear and Pump demolition and PSW Pump installation, the PSW pipe header to each Unit's East Penetration Room will be installed. This includes piping, valves, valve controllers, flow elements and electronics. During the PSW pump installation, the existing Station ASW piping to the Steam Generators will be cut from the Emergency Feedwater (EFW) headers that feed the Steam Generators and the new PSW piping lines headers will be connected to the EFW headers.

New high pressure valves were previously installed at the Station ASW connections to the EFW headers. These valves are normally closed and will be utilized as the isolations to the Steam Generators to allow the PSW tie-ins while the Units are online.

The Station ASW Switchgear will be removed from service including associated components such as transformers, motor control centers, breakers, Station ASW pump and motor, and piping.

PSW equipment such as the primary and booster pump/motor, piping, switches, valves, breakers, cables, etc. will be installed.

This work evolution is currently scheduled for an estimated duration of 70 days.
Removing Station ASW and installing PSW is a large and extensive scope of work being done by modification, and is a complex evolution. Contingencies to mitigate the risk for having the Station ASW system out of service greater than the AOT provided in SLC 16.9.9 Condition A have been incorporated into a complex activity plan. The Complex Activity Plan was reviewed and approved by the Plant Operations Review Committee on July 30, 2014.

SLC 16.9.9, Condition A was entered on August 13, 2014, when Station ASW was removed from service, but will not be explicitly applicable to Station ASW since it will cease to exist at the point that system is demolished. However, the Complex Activity Plan will provide control during the interim period while transitioning from Station ASW to PSW. When PSW is completed, a revised SLC 16.9.9 will be issued to address functionality of the system until the entire PSW System is installed, fully tested and its Technical Specifications become applicable.

The following outlines the plans and procedures that will be in place to provide for the loss of the Station ASW system as specified in Condition C of SLC 16.9.9:

- The SSF will be OPERABLE and available. With the exception of non-discretionary maintenance testing in accordance with TS or emergent corrective work to restore SSF operability, no elective work rendering the SSF unavailable will be performed on SSF systems during Station ASW demolition and PSW System installation. Required SSF monthly preventive maintenance will be performed with the Shift Manager concurrence.
- The following components shall be considered "Protected" equipment for the operating units:
    - PSW Building.
    - SSF Building including the following:
        - SSF ASW Pump Breaker (OTS1-2), SSF ASW Pump Close Pushbutton/Trip, and the SSF ASW Pump.
        - Main Feeder Bus Normal Feeder (B2T-4) to SSF Switchgear (OTS1-1).
        - OTS1 Alternate Power Feed (OTS1-0) from PSW Switchgear (B7T).
        - Diesel Generator Breaker (OTS1-4) Control Pushbutton Switch and Diesel Generator Breaker (OTS1-4).
        - Air Starter Relay Inlets for Diesel Generator A, Engines A (DA-24) and B (DA-30) and Diesel Generator B, Engines C (DA-36) & D (DA-42).
- Once the Station ASW System is taken out of service, work activities will be performed continuously until the PSW is installed and declared functional.
- The Fant 100 kV line or the Keowee Hydro Unit aligned to PSW for SSF will be available.
- Any emergent equipment issue that places the site in an unplanned elevated PRA condition due to interaction with ASW unavailability will be evaluated by the Shift Manager, the Project Command Center (PCC), and Activity Manager to determine the most prudent course of action to exit the elevated risk condition. The Activity Manager will consult with the PCC, Management Oversight, and Shift Manager to determine whether to terminate activities in progress or proceed to completion based on which is the most expeditious. Elevated risks will be carefully controlled to have a clear path for successful return to normal. If the elevated risk condition cannot be prevented, PCC and work control will prepare a response (plan) to return conditions to acceptable levels. These actions could include completing all work in progress and exiting the unavailability. The Shift Manager may initiate a Unit Threat team per NSD 505, "Response to Reactor Trips, Significant Transients, or Unit Threat Situations." Adverse weather will be treated similarly.
- In the event of notification of tornado watch or warning for Oconee or Pickens Counties, at Shift Manager discretion, Operations will be prepared to station personnel at SSF as required by AP/0/A/1700/006 (Natural Disaster).
- PSW power to High Pressure Injection Pumps (HPIs) will be available.
- Staged diesel driven pump and alternate B.5.b hose connections will be available to support scenarios that credit ASW connection point for providing a source of water to the steam generators.

- Sensitive Equipment monitoring will be utilized during work activities to prevent interaction with sensitive equipment. Normal work practices will be used to avoid foreign material intrusion.
- No planned work on Low Pressure Service Water or High Pressure Service Water that affects HPI Motor Coolers in order to maintain cooling water for HPI Motor Cooling Jackets.
- To avoid extending the duration of the work, PSW scheduled tasks will be assigned higher priority than other normally scheduled online work. Any PSW emergent tasks will be given high priority. Risk assessments will be performed daily. A PCC coordinator will be assigned to track work progress and ensure appropriate priorities are established for the work tasks.
- An assessment will be conducted each shift to evaluate work progress and risk to the extent that they affect the projected unavailability. The PCC manager will be notified of any potential negative impacts.
- BWST Tornado Protection Enhancements – Passive Civil Features remain intact when HPI Pump Spent Fuel Pool Priming Pumps are not available.

Conclusion:

The appropriate action statements will be entered for the Station ASW System being declared inoperable. SLC 16.9.9, Condition A, Required Action and Completion Time to return the Station ASW system to service within 30 days will be exceeded due to the complexity and increased scope of the planned maintenance evolution and modifications which transition Station ASW to PSW. Since the work evolution is scheduled for an estimated 70 day duration; thereby, requiring entry into SLC 16.9.9, Condition C, Required Action, and Completion Time to generate the report to the NRC outlining the plans and procedures to be used to provide for loss of the Station ASW System within 30 days is necessary. Appropriate risk management actions will be implemented within Oconee's Maintenance Rule a(4) program to provide for the loss of the system and assure the availability of redundant accident mitigation systems throughout the entire duration of the system outage. It is important to note that the benefits of performing the work include improved reliability of the affected systems and equipment. Also, overall plant risk will be reduced for the remaining life of the plant after final installation of the new PSW system.