Southern Nuclear

Plant Hatch: Re-Write of Technical Specification (TS) 3.7.2 to Allow Limiting Condition for Operation (LCO) 3.7.2 to be Met with One Operable Plant Service Water (PSW) Pump per Subsystem

NRC Pre-Submittal Meeting

June 22, 2022

Why Are We Here?

SNC will be requesting a License Amendment to …

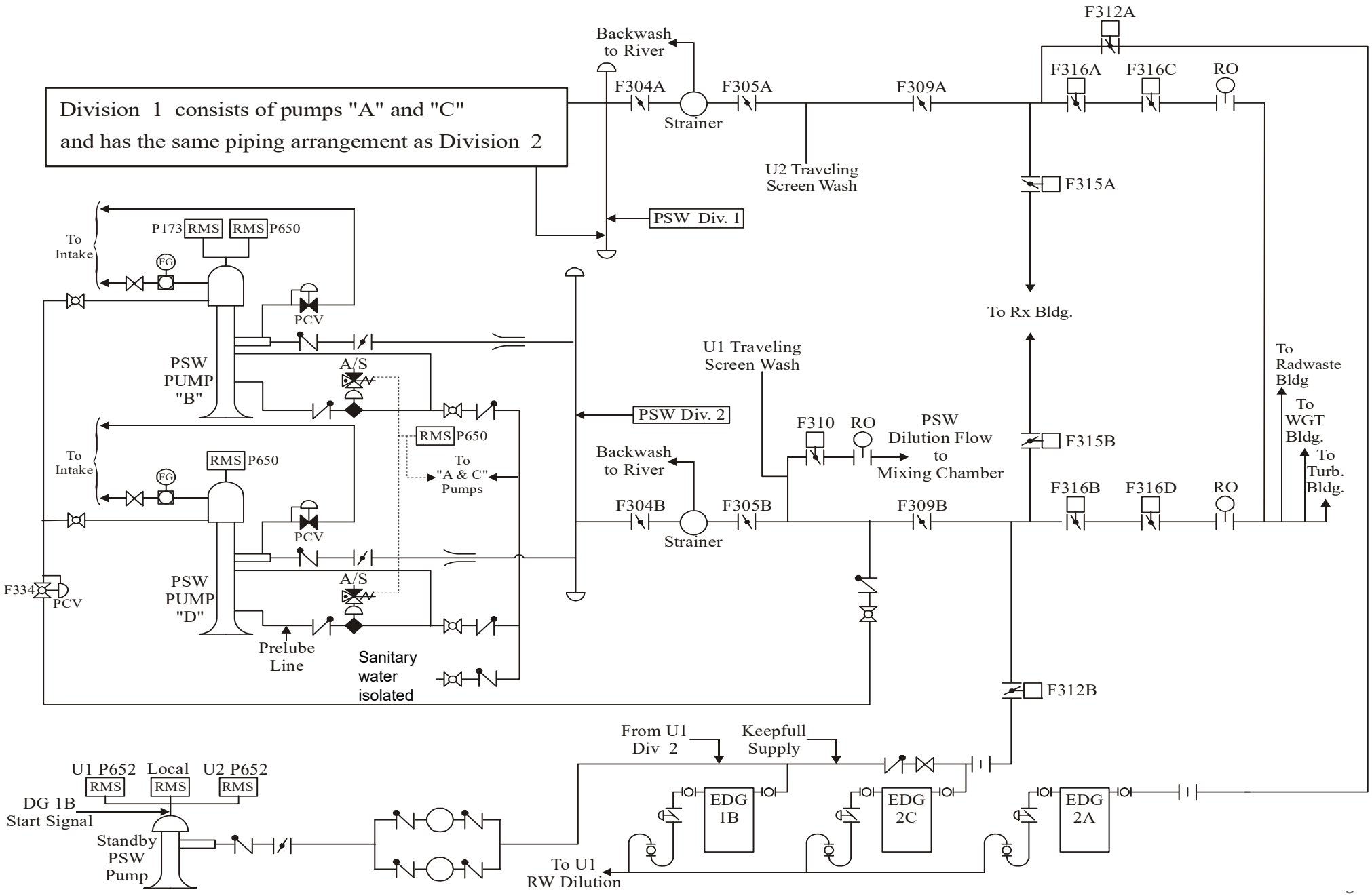
Rewrite Plant Hatch TS 3.7.2 (both units) to allow LCO 3.7.2 to be met with one operable Plant Service Water (PSW) pump per subsystem.

Key Goals for This Meeting:

- ✓ Brief NRC on the License Amendment Request
- ✓ Ensure Common Understanding of the HNP Request, Technical Scope and Regulatory Expectations
- ✓ Obtain Feedback Prior to Submittal

We appreciate your participation and feedback

System Diagram



Background and History for Request

Background:

- Each unit at Hatch has two PSW subsystems, each with two PSW pumps in parallel. Division 1 has pumps A and C. Division 2 has pumps B and D.
- LCO 3.7.2 states, “Two PSW Subsystems and UHS [Ultimate Heat Sink] shall be OPERABLE.”
- Condition A states, “One PSW pump inoperable.” Required Action A.1 states, “Restore PSW pump to Operable status,” with a Completion Time (CT) of 30 days. Not meeting the 30-day CT leads to the plant having to be in Mode 3 within 12 hours.
- This Completion Time of 30 days has led to Emergency Technical Specification Change Requests in September 2021 (granted and utilized) and April 2022 (withdrawn).
- Plant Hatch typically operates four PSW pumps to meet full power generation cooling load requirements in the summer and three the remainder of the year.

Description and Timeframe for Request

Proposed Request:

- In contrast to power generation operation, Safe Shutdown only requires one PSW pump.
- A re-write of TS 3.7.2, “PSW System and UHS” to allow LCO 3.7.2 to be met with one pump in each subsystem Operable.
- SNC schedule is to submit on, or about, July 8, 2022.

Basis for Request

Basis for Request:

- Requirement for one operable pump per PSW subsystem is supported by existing FSAR and TS Bases statements.
  - "Shutdown cooling of the plant requires only one PSW pump delivering 4428 gal/min." – Unit 1 FSAR, Section 10.7.5; Unit 2 FSAR, Sections 9.2.1.2 and 10.7.5
  - "Safe shutdown requires only one PSW pump operable." – Unit 1 FSAR Section 12.2.7
  - Similar statements appear in the TS Bases of both units.
- To support this LAR, SNC will complete an Engineering Evaluation prior to submittal to confirm the above statements.
- Because only one PSW pump is needed (out of four available), for safe shutdown loads, SNC has decided not to pursue a risk-based application and will use deterministic methods based on the Engineering Evaluation.
- No precedent identified.
- STS (NUREG-1433) based on current Hatch TS.

Proposed Markups - Intro

Proposed TS Markups:

- The following slides show the proposed markups.
  - Deletes verbiage added to the Required Actions for Condition A added by the Emergency TS change of September 2021 for Unit 1.
  - TS 3.6.2.4, “Residual Heat Removal (RHR) Suppression Pool Spray” used as guidance for formatting.

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3.7.2 Plant Service Water (PSW) System and Ultimate Heat Sink (UHS)

LCO 3.7.2 Two PSW subsystems and UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~A. One PSW pump inoperable.~~	~~A.1 Restore PSW pump to OPERABLE status.~~ ~~OR~~ ~~NOTES~~ ~~1. Only applicable during 1C PSW pump repair.~~ ~~2. Only applicable until October 10, 2021 at 1620 EDT.~~ ~~A.2.1 Establish compensatory measures as described in letter NL-21-0862 dated September 23, 2021, Enclosure 5.~~ ~~AND~~ ~~A.2.2 Restore PSW pump to OPERABLE status.~~	~~30 days~~ ~~30 days~~ ~~45 days~~

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~~B~~A. One PSW turbine building isolation valve inoperable.	~~B~~A.1	Restore PSW turbine building isolation valve to OPERABLE status.	30 days
~~C. One PSW pump in each subsystem inoperable.~~	~~C.1~~	~~Restore one PSW pump to OPERABLE status.~~	~~7 days~~
~~D~~B. One PSW turbine building isolation valve in each subsystem inoperable.	~~D~~B.1	Restore one PSW turbine building isolation valve to OPERABLE status.	72 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E~~C. Required Action and associated Completion Time of Condition A~~, B, C,~~ or ~~D~~B not met.	~~E~~C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
~~F~~D. One PSW subsystem inoperable~~ for reasons other than Conditions A and B~~.	----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for diesel generator made inoperable by PSW System. 2. Enter applicable Conditions and Required Actions of LCO 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," for RHR shutdown cooling made inoperable by PSW System. ---------- ~~F~~D.1 Restore the PSW subsystem to OPERABLE status.	12 hours ~~72 hours~~

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~~G~~E. Required Action and associated Completion Time of Condition ~~F~~D not met. OR Both PSW subsystems inoperable for reasons other than Condition~~s C and D~~B. OR UHS inoperable.	~~G~~E.1	Be in MODE 3.	12 hours
	AND		
	~~G~~E.2	Be in MODE 4.	36 hours

Loss of Function Consideration

- For normal, power-producing operation, Plant Hatch may require as many as four operating PSW pumps (dependent on operating conditions, such as ambient and river water temperatures).
- However, only one PSW pump is required to support the following Safety-Related Safe Shutdown loads (e.g., Division I loads):
  - 1P41C001A – PSW Pump Motor Oil Cooler
  - 1P41C001C – PSW Pump Motor Oil Cooler
  - 1E11C001A – RHRSW Pump Motor Oil Cooler
  - 1E11C001C – RHRSW Pump Motor Oil Cooler
  - 1R43S001A – Emergency Diesel Generator
  - 1R43S001B – Emergency Diesel Generator (Alternate – Normally Isolated)
  - 1T41B002A – RHR Pump Room Cooler
  - 1T41B002B – RHR Pump Room Cooler
  - 1E11B002A – RHR Pump Seal Oil Cooler
  - 1E11B002C – RHR Pump Seal Oil Cooler
  - 1T41B004A – RCIC Pump Room Cooler
  - 1T41B004B – RCIC Pump Room Cooler
  - 1Z41B008A – Control Room Air Conditioner
  - 1Z41B008B – Control Room Air Conditioner (Normally in Standby)

Summary

- Total Safety-Related Loads for PSW Systems ≈ 4,428 gpm.
- A single PSW Pump is rated at 8,500 gpm.
- Therefore, only one PSW pump is needed for safe shutdown.
- GDC single failure criteria met with one PSW pump Operable in each subsystem:
  - GDC 34, Residual heat removal
  - GDC 35, Emergency core cooling
  - GDC 38, Containment heat removal
  - GDC 44, Cooling water
- Therefore, a PSW subsystem can perform its safety function with a single Operable PSW pump (versus both pumps) in a single subsystem.

What Feedback Do You Have?