

B 3.7 PLANT SYSTEMS

B 3.7.8 Standby Nuclear Service Water Pond (SNSWP)

BASES

BACKGROUND The SNSWP functions as the ultimate heat sink and performs two principal safety functions: (1) dissipation of residual heat after reactor shutdown and (2) dissipation of residual heat after an accident. This is done by utilizing the Nuclear Service Water System (NSWS) and the Component Cooling Water (CCW) System.

The ultimate heat sink (UHS) is comprised of cooling water from the SNSWP, necessary retaining structures, and the canals or conduits connecting the water sources with, but not including, the cooling water system intake structures as discussed in the UFSAR, Section 9.2 (Ref. 1). For McGuire, the SNSWP is the only cooling water source qualified as the ultimate heat sink.

The SNSWP can be aligned to dissipate sensible heat during normal operation. The basic performance requirements are that a 30 day supply of water be available, and that the design basis temperatures of safety related equipment not be exceeded.

Additional information on the design and operation of the system, along with a list of components served, can be found in Reference 1.

APPLICABLE SAFETY ANALYSES The SNSWP provides the Ultimate Heat Sink safety function to dissipate residual heat from the reactor core following all accidents and anticipated operational occurrences in which the unit is cooled down and placed on residual heat removal (RHR) operation. The maximum post accident heat load occurs approximately 3 hours after a design basis loss of coolant accident (LOCA). Prior to this time, the unit switches from injection to recirculation and the containment cooling systems and RHR are required to remove the core decay heat.

The SNSWP is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the SNSWP. Reference 1 provides the details of the assumptions used in the analysis.

The SNSWP satisfies Criterion 3 of 10 CFR 50.36 (Ref. 3).

BASES

LCO The SNSWP is required to be OPERABLE and is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the NSWS to operate for at least 30 days following the design basis LOCA without the loss of net positive suction head (NPSH), and without exceeding the maximum design temperature of the equipment served by the NSWS. To meet this condition, the SNSWP temperature should not exceed 82°F at 722 ft mean sea level and the level should not fall below 739.5 ft mean sea level during normal unit operation.

APPLICABILITY In MODES 1, 2, 3, and 4, the SNSWP is required to support the OPERABILITY of the equipment serviced by the SNSWP and required to be OPERABLE in these MODES.

In MODE 5 or 6, the requirements of the SNSWP are determined by the systems it supports.

ACTIONS A.1

If the SNSWP is inoperable the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS SR 3.7.8.1

This SR verifies that adequate long term (30 day) cooling can be maintained. The specified level also ensures that sufficient NPSH is available to operate the NSWS pumps. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program. This SR verifies that the SNSWP water level is ≥ 739.5 ft mean sea level.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.8.2

This SR verifies that the NSWS is available to cool the CCW System to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a Design Basis Accident. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program. This SR verifies that the average water temperature of the SNSWP is $\leq 82^{\circ}\text{F}$ at an elevation of 722 ft. The SR is modified by a Note that states the Surveillance is only required to be performed during the months of July, August, and September. During other months, the ambient temperature is below the surveillance limit.

SR 3.7.8.3

This SR verifies dam integrity by inspection to detect degradation, erosion, or excessive seepage. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 9.2.
2. Regulatory Guide 1.27.
3. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
4. Regulatory Guide 1.127.