Exelon Generation®

10 CFR 50.90

July 18, 2012

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Revision of Normal Heat Sink Technical Specification to Remove the 24-Hour Average Temperature Limit With No Change to the Peak Maximum Temperature

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) requests a proposed change to modify the Technical Specifications (TSs). The proposed change revises the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 TS Section 3.7.2, "Emergency Service Water (ESW) System and Normal Heat Sink," to change the requirements for determining the operability of the Normal Heat Sink (NHS). Specifically, this change is proposing to revise TS Section 3.7.2 to remove the maximum 24-hour average temperature of 90°F with no change to the peak maximum NHS temperature of 92°F.

The proposed change has been reviewed by the PBAPS Plant Operations Review Committee, and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program.

EGC requests approval of the proposed amendment by July 18, 2013. Once approved, this amendment shall be implemented within 30 days. Additionally, there are no commitments contained within this letter.

Attachment 1 contains the evaluation of the proposed changes. Attachment 2 provides the marked up TS and Bases pages. The Bases pages are being provided for information only.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the Commonwealth of Pennsylvania of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

Should you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 18th of July 2012.

Respectfully,

Michael D. Jesse
Director, Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment 1: Evaluation of Proposed Changes
Attachment 2: Markup of Technical Specifications and Bases Pages

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, PBAPS
USNRC Senior Project Manager, PBAPS
R. R. Janati, Commonwealth of Pennsylvania
S. T. Gray, State of Maryland

Attachment 1

Evaluation of Proposed Changes

ATTACHMENT 1

CONTENTS

SUBJECT: Revision of Normal Heat Sink Technical Specification

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Renewed Facility Operating Licenses DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

The proposed change revises the PBAPS, Units 2 and 3 Technical Specification (TS) Section 3.7.2, "Emergency Service Water (ESW) System and Normal Heat Sink," to change the requirements for determining the operability of the Normal Heat Sink (NHS). Specifically, PBAPS is proposing to revise TS Section 3.7.2 to remove the maximum 24-hour average temperature of 90°F with no change to the peak maximum NHS temperature of 92°F.

2.0 DETAILED DESCRIPTION

Currently, the PBAPS TSs allow plant operation to continue if the NHS temperature remains below 92°F. When the temperature goes above 90°F, the current TS requires that the water temperature over the previous 24-hour period be averaged to ensure the average temperature does not exceed 90°F. The current format is based upon NRC-approved Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, "Allowed Outage Time - Ultimate Heat Sink", TSTF-330, Revision 3, dated October 13, 2000. This change was approved in a license amendment for PBAPS, Units 2 and 3 (Amendment Nos. 244/248) dated July 29, 2002. The proposed change revises TS Section 3.7.2 to remove the maximum 24-hour average temperature of 90°F with no change to the peak maximum NHS temperature of 92°F.

During the summer of 2012, the NHS temperature for the intake of PBAPS, Units 2 and 3 has approached 90°F earlier than expected. The cause for the temperature increase to the NHS has been a long period of time with low precipitation (rain) resulting in a sustained reduction in Susquehanna River flow. The abnormally hot weather conditions for an extended period of time have resulted in NHS temperatures that were close to 90°F, which would have resulted in entering the Required Action which could lead to a required shutdown of PBAPS, Units 2 and 3.

A shutdown of both units resulting from exceeding the NHS average temperature requirement without exceeding the maximum temperature of 92°F would result in an unnecessary plant transient and increase the possibility of a disturbance to the PBAPS off-site electrical power sources and the regional electrical power distribution system.

Marked up TS Bases pages are provided in Attachment 2, and are provided for information only.

3.0 TECHNICAL EVALUATION

The NHS for PBAPS is the Conowingo Pond. The PBAPS site is located on the westerly shore of the Conowingo Pond, which is formed in the Susquehanna River by the Conowingo Dam located approximately 8.5 miles downstream. Holtwood Dam, located approximately 6 miles upstream from the PBAPS site, forms the upper boundary of the Conowingo Pond. The Muddy Run Pumped Storage Plant, which is owned and operated by Exelon Generation Company, LLC (EGC), is located on the easterly shore of the Conowingo Pond approximately 4 miles

upstream from the PBAPS site. Under normal river flow conditions, the PBAPS NHS is considered an infinite heat sink; however, during periods of low river flow, operation of the Muddy Run Pumped Storage Plant has the potential to reverse the normal downstream flow during the pumping cycle when river flows are below approximately 13,000 cubic feet per second (cfs). A multiple degree increase in PBAPS intake water temperature can occur during Muddy Run pumping cycle operations when river flow is at or below 5,000 cfs. Observed flows in the Susquehanna River, as measured at the Marietta Gage, ranged from a minimum daily average (1964) of 1,450 cfs to a peak daily average (1972) of 1,040,000 cfs. As a result of challenges to the NHS temperature limit in the Summer of 1999, station procedures have been implemented that limit Muddy Run pumping cycles during periods of high NHS temperature (greater than or equal to 87°F) and low river flow (less than 5,000 cfs) thus minimizing the impact of Muddy Run pumping operations on PBAPS NHS intake temperature. Limitations apply to Muddy Run pumping operations only and do not apply to Muddy Run generation.

The NHS serves as the heat sink for the Circulating Water (CW), Service Water (SW), Emergency Service Water (ESW) and High Pressure Service Water (HPSW) Systems to allow for the removal of heat from both safety related and non-safety related components and cooling systems during normal operation, shutdown and accident conditions. The CW System is a non-safety related system that provides cooling water to the Main Condensers. The SW System is a non-safety related system that provides cooling water to the Reactor Building Closed Cooling Water (RBCCW) System, Turbine Building Closed Cooling Water (TBCCW) System heat exchangers and other non-safety related heat exchangers and equipment. The safety related ESW and HPSW Systems are discussed further in the Component Evaluation section below.

The proposed change does not utilize the averaging approach contained in TSTF-330, Revision 3, which is shown as a plant specific option in NUREG-1433, Revision 4. The maximum NHS temperature of 92°F satisfies the accident analysis assumptions for heat removal over time. A NHS temperature averaging approach is not used in any Peach Bottom design basis analysis.

Component Evaluation

The following safety related components are cooled by the NHS following an accident or abnormal operational transient:

HPSW System:
Residual Heat Removal (RHR) Heat Exchangers
HPSW Pump Motor Oil Coolers

ESW System:
RHR Pump Room Coolers
RHR Pump Seal Coolers
Core Spray (CS) Pump Room Coolers
High Pressure Coolant Injection (HPCI) Pump Room Coolers
Reactor Core Isolation Cooling (RCIC) Pump Room Coolers
Emergency Diesel Generator (EDG) Heat Exchangers
CS Pump Motor Oil Coolers

Engineering calculations have demonstrated that the HPCI and RCIC Pump Room Coolers, and the RHR Pump Seal Coolers are not required to support operability of their supported safety system. Therefore, this equipment is not addressed in the following evaluation.

Technical Specification 3.7.2, "Emergency Service Water (ESW) System and Normal Heat Sink," requires the NHS to be Operable in Modes 1, 2, and 3. The purpose of this requirement is to ensure that the heat removal capability of the ESW and HPSW Systems is adequate to maintain the design basis temperatures of safety related equipment relied upon to mitigate the consequences of an accident or operational transient.

Currently, the PBAPS TSs allow plant operation to continue if the NHS temperature remains below 92°F. When the temperature goes above 90°F, the current TS requires that the water temperature over the previous 24-hour period be averaged to ensure the average temperature does not exceed 90°F. The proposed change is to revise TS Section 3.7.2 to remove the maximum 24-hour average of 90°F with no change to the peak maximum NHS of 92°F. This approach is consistent with the PBAPS design basis analyses since they already show that safety related components will continuously perform their design function at a NHS temperature up to 92°F.

This change does not alter any assumptions on which the plant safety analysis is based. All design basis analyses use 92°F or greater as an input or determine that the maximum allowable NHS temperature is greater than or equal to 92°F. None of these analyses use a 24-hour rolling average of 90°F. Therefore, all existing calculations remain valid.

RHR Heat Exchangers

The PBAPS plant specific analyses for the Design Basis Accidents (DBAs) and non-break events which require containment cooling assume a minimum RHR heat exchanger heat transfer capability that is based upon a conservative amount of overall thermal fouling and a set percentage of the tube population plugged. The actual fouling factors determined from test data and engineering analysis are used to verify operability of the heat exchangers by comparison to the equipment design basis heat transfer rate. The material condition of the RHR heat exchangers is maintained better than assumed in the engineering analyses. The RHR heat exchangers are capable of maintaining the required heat transfer capability at an NHS temperature of 92°F. The RHR Heat Exchangers are maintained in compliance with the Generic Letter 89-13 testing program. Compliance with the acceptance criteria for the heat transfer rate of the RHR heat exchangers is controlled by procedures thus ensuring that the limit is not reached. By maintaining the design basis capability of the RHR heat exchangers, the heat exchanger capability that has been assumed in evaluating plant events is maintained.

EDG Heat Exchangers

Engineering analysis established permissible fouling factors for the EDG heat exchangers based upon the limiting conditions for electrical loading, combustion air inlet temperature, and cooling water flow and temperature. Sufficient margin exists between measured fouling and permissible fouling to allow the EDG heat exchangers to perform their design basis function at an NHS temperature of 92°F at any point during the heat

exchanger operating cycle between scheduled cleanings. Compliance with the acceptance criteria for fouling of the EDG heat exchangers is controlled in accordance with the Generic Letter 89-13 testing program, thereby ensuring that the established limits for heat exchanger fouling are not reached. By maintaining the design basis capability of the EDG heat exchangers, the ability of the EDG system to provide onsite emergency AC power, as required, is maintained.

RHR and CS Pump Room Coolers

The RHR and CS Pump Room Coolers have been calculated to be capable of maintaining acceptable pump room post-accident temperature profiles assuming the room coolers in each pump room are supplied cooling water at a temperature of 95°F. Periodic testing is performed to verify that the equipment performance assumed in the analyses is maintained. The testing is performed in compliance with the Generic Letter 89-13 testing program.

HPSW and CS Pump Motor Oil Coolers

Sufficient margin exists for the affected motor oil coolers to perform their design basis function at a cooling water inlet temperature of 92°F. Periodic testing is performed to verify that the required equipment capability is maintained at the NHS temperature limit. The testing is performed in compliance with the Generic Letter 89-13 testing program.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The NHS meets the criteria of 10 CFR 50.36, "Technical Specifications," paragraph (c)(2)(ii), Criterion 3 for inclusion into the TS. These requirements state the following:

> (ii) A Technical Specification Limiting Condition for Operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:
>
> Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The proposed change does not relocate the NHS temperature limit from TS 3.7.2, "Emergency Service Water (ESW) System and Normal Heat Sink," and therefore, Criterion 3 of 10 CFR 50.36(c)(2)(ii) continues to be met.

4.2 Precedent

Letter from J. Boska (U.S. Nuclear Regulatory Commission) to J. Skolds (Exelon Generation Company, LLC), "Peach Bottom Atomic Power Station, Units 2 and 3 – Issuance of Amendment RE: Heat Sink Temperature Limits (TAC Nos. MB4624 and MB4625)," dated July 29, 2002.

4.3 No Significant Hazards Consideration

Exelon Generation Company, LLC (EGC) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed change allows plant operation to continue if the Normal Heat Sink (NHS) temperature does not exceed 92°F. The water temperature limit imposed for the NHS exists to ensure the ability of safety systems to mitigate the consequences of an accident and does not involve the prevention or identification of any precursors of an accident. The water temperature of the NHS cannot adversely affect the initiator of any accident previously evaluated. This change does not affect the normal operation of the plant to the extent that any accident previously evaluated would be more likely to occur.

   The safety objective of the water temperature limit for the NHS is to ensure that the heat removal capability of the Emergency Service Water (ESW) and High Pressure Service Water (HPSW) Systems is adequate to allow safety related equipment that is relied upon to mitigate the consequences of an accident or operational transient to perform its design function. The design basis heat removal capability of the affected components and systems is maintained at the NHS temperature limit, thus ensuring that the affected safety related components continuously perform their safety related function at the NHS temperature limit. The limits for equipment degradation ensure that the affected components continue to perform their design basis function. Consequently, the affected components maintain their design basis capability as previously assumed in plant safety analyses.

   Therefore, the proposed amendment does not involve a significant increase in the probability or consequence of a previously evaluated accident.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed change allows plant operation to continue if the Normal Heat Sink (NHS) temperature does not exceed 92°F. The method of operation of components (heat exchangers, coolers, etc.), which rely on the NHS for cooling, is not altered by this activity. The water temperature limit imposed for the NHS exists to ensure the ability of plant safety equipment to mitigate the consequences of an accident and does not have the potential to create an accident initiator. This activity does not involve a physical change to any plant structure, system or component that is considered an accident initiator. The design basis heat removal capability of the affected components is maintained.

This license amendment request does not involve any changes to the operation, testing, or maintenance of any safety-related, or otherwise important to safety systems. All systems important to safety will continue to be operated and maintained within their design bases.

Therefore, no new failure modes are introduced and the possibility of a new or different kind of accident is not created.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

Operation of PBAPS, Units 2 and 3 under the NHS temperature limit (92°F) does not reduce the margin of safety as defined in the basis for any Technical Specification. Technical Specification Surveillance Requirement (SR) 3.7.2.2 defines the value for satisfying the Limiting Condition for Operation for the temperature of the NHS. A portion of the Technical Specification Bases for SR 3.7.2.2 states:

> Verification of the Normal Heat Sink temperature ensures that the heat removal capability of the ESW and HPSW Systems is within the DBA analysis.

The basis for SR 3.7.2.2 has not changed as a result of the proposed changed. The heat removal capability of the components that rely on the ESW and HPSW Systems for cooling is based on the Technical Specification temperature limit (92°F) of the NHS and the performance capability of the equipment.

Periodic testing and cleaning are required to verify and ensure that the assumed degree of degradation is not reached. The limits for equipment degradation ensure that affected components continue to perform their design basis function. Therefore, since the design basis capability of the affected components is maintained at the NHS temperature limit (92°F), this change does not involve a significant reduction in the margin of safety.

Based on the above, EGC concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of no significant hazards consideration is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

None

ATTACHMENT 2

Markup of Technical Specifications and Bases Pages

Revised Pages (Units 2 and 3)

3.7-3
3.7-4
B 3.7-7
B 3.7-8
B 3.7-8a
B 3.7-9

3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System and Normal Heat Sink

LCO 3.7.2 Two ESW subsystems and normal heat sink shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW subsystem inoperable.	A.1 Restore ESW subsystem to OPERABLE status.	7 days
B. Water temperature of the normal heat sink is > 90°F and ≤ 92°F.	B.1 Verify water temperature of the normal heat sink is ≤ 90°F averaged over the previous 24 hour period.	Once per hour
C. Required Action and associated Completion Time of Condition A or B not met. OR Both ESW subsystems inoperable. OR Normal heat sink inoperable [for reasons other than condition B]	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	Verify the water level in the pump bays of the pump structure is ≥ 98.5 ft Conowingo Datum (CD) and ≤ 113 ft CD.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.2	Verify the average water temperature of normal heat sink is ≤ 90°F. 92	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.3	----------NOTE---------- Isolation of flow to individual components does not render ESW System inoperable. ---------- Verify each ESW subsystem manual and power operated valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.4	Verify each ESW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The ability of the ESW System to provide adequate cooling to the identified safety equipment is an implicit assumption for the safety analyses evaluated in Reference 1. The ability to provide onsite emergency AC power is dependent on the ability of the ESW System to cool the DGs. The long term cooling capability of the RHR and core spray pumps is also dependent on the cooling provided by the ESW System.

ESW provides cooling to the HPCI and RCIC room coolers; however, cooling function is not required to support HPCI or RCIC System operability.

The ESW System, together with the Normal Heat Sink, satisfy Criterion 3 of the NRC Policy Statement.

LCO

The ESW subsystems are independent to the degree that each ESW pump has separate controls, power supplies, and the operation of one does not depend on the other. In the event of a DBA, one subsystem of ESW is required to provide the minimum heat removal capability assumed in the safety analysis for the system to which it supplies cooling water. To ensure this requirement is met, two subsystems of ESW must be OPERABLE. At least one subsystem will operate, if the worst single active failure occurs coincident with the loss of offsite power.

A subsystem is considered OPERABLE when it has an OPERABLE normal heat sink, one OPERABLE pump, and an OPERABLE flow path capable of taking suction from the pump structure and transferring the water to the appropriate equipment.

The OPERABILITY of the normal heat sink is based on having a minimum and maximum water level in the pump bay of 98.5 ft Conowingo Datum (CD) and 113 ft CD respectively and a maximum water temperature of 92°F.

The isolation of the ESW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ESW System.

APPLICABILITY

In MODES 1, 2, and 3, the ESW System and normal heat sink are required to be OPERABLE to support OPERABILITY of the equipment serviced by the ESW System. Therefore, the ESW System and normal heat sink are required to be OPERABLE in these MODES.

(continued)

BASES

APPLICABILITY (continued)

In MODES 4 and 5, the OPERABILITY requirements of the ESW System and normal heat sink are determined by the systems they support, and therefore the requirements are not the same for all facets of operation in MODES 4 and 5. Thus, the LCOs of the systems supported by the ESW System and normal heat sink will govern ESW System and normal heat sink OPERABILITY requirements in MODES 4 and 5.

ACTIONS

A.1

With one ESW subsystem inoperable, the ESW subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE ESW subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE ESW subsystem could result in loss of ESW function.

The 7 day Completion Time is based on the redundant ESW System capabilities afforded by the OPERABLE subsystem, the low probability of an event occurring during this time period, and is consistent with the allowed Completion Time for restoring an inoperable DG.

B.1

With water temperature of the normal heat sink > 90°F and ≤ 92°F, the design basis assumptions associated with the initial normal heat sink temperature are bounded provided the temperature of the normal heat sink when averaged over the previous 24 hour period is ≤ 90°F. To ensure that the 92°F normal heat sink temperature limit is not exceeded, Required Action B.1 is provided to more frequently monitor the temperature of the normal heat sink. The Unit 2 normal heat sink temperature is measured from the Unit 2 intake canal. The once per hour completion time takes into consideration normal heat sink temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the normal heat sink exceeds 90°F when averaged over the previous 24 hour period or the water temperature of the normal heat sink exceeds 92°F, Condition C must be entered immediately.

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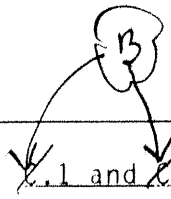
BASES



ACTIONS (continued)

C.1 and C.2

If the ESW System cannot be restored to OPERABLE status within the associated Completion Time, or both ESW subsystems are inoperable, or the normal heat sink 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 12 hours and in MODE 4 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 3.7.2.1

This SR verifies the water level in the pump bay of the pump structure to be sufficient for the proper operation of the ESW pumps (the pump's ability to meet the minimum flow rate and anticipatory actions required for flood conditions are

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1 (continued)

considered in determining these limits). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.2.2

Verification of the normal heat sink temperature ensures that the heat removal capability of the ESW and HPSW systems is within the DBA analysis. The Unit 2 normal heat sink temperature is measured from the Unit 2 intake canal. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

The water temperature is measured by averaging multiple instruments that measure the normal heat sink temperature.

SR 3.7.2.3

Verifying the correct alignment for each manual and power operated valve in each ESW subsystem flow path provides assurance that the proper flow paths will exist for ESW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be automatically realigned to its accident position within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

This SR is modified by a Note indicating that isolation of the ESW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ESW System. As such, when all ESW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the ESW System is still OPERABLE.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

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3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System and Normal Heat Sink

LCO 3.7.2 Two ESW subsystems and normal heat sink shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW subsystem inoperable.	A.1 Restore ESW subsystem to OPERABLE status.	7 days
B. Water temperature of the normal heat sink is > 90°F and ≤ 92°F.	B.1 Verify water temperature of the normal heat sink is ≤ 90°F averaged over the previous 24 hour period.	Once per hour
C. Required Action and associated Completion Time of Condition A or B not met. OR Both ESW subsystems inoperable. OR Normal heat sink inoperable [for reasons other than Condition B].	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	Verify the water level in the pump bays of the pump structure is ≥ 98.5 ft Conowingo Datum (CD) and ≤ 113 ft CD.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.2	Verify the average water temperature of normal heat sink is ≤ ~~90~~ 92 °F.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.3	----------NOTE---------- Isolation of flow to individual components does not render ESW System inoperable. ---------- Verify each ESW subsystem manual and power operated valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.4	Verify each ESW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The ability of the ESW System to provide adequate cooling to the identified safety equipment is an implicit assumption for the safety analyses evaluated in Reference 1. The ability to provide onsite emergency AC power is dependent on the ability of the ESW System to cool the DGs. The long term cooling capability of the RHR and core spray pumps is also dependent on the cooling provided by the ESW System.

ESW provides cooling to the HPCI and RCIC room coolers; however, cooling function is not required to support HPCI or RCIC System operability.

The ESW System, together with the Normal Heat Sink, satisfy Criterion 3 of the NRC Policy Statement.

LCO

The ESW subsystems are independent to the degree that each ESW pump has separate controls, power supplies, and the operation of one does not depend on the other. In the event of a DBA, one subsystem of ESW is required to provide the minimum heat removal capability assumed in the safety analysis for the system to which it supplies cooling water. To ensure this requirement is met, two subsystems of ESW must be OPERABLE. At least one subsystem will operate, if the worst single active failure occurs coincident with the loss of offsite power.

A subsystem is considered OPERABLE when it has an OPERABLE normal heat sink, one OPERABLE pump, and an OPERABLE flow path capable of taking suction from the pump structure and transferring the water to the appropriate equipment.

The OPERABILITY of the normal heat sink is based on having a minimum and maximum water level in the pump bay of 98.5 ft Conowingo Datum (CD) and 113 ft CD respectively and a maximum water temperature of 90°F.

92

The isolation of the ESW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ESW System.

APPLICABILITY

In MODES 1, 2, and 3, the ESW System and normal heat sink are required to be OPERABLE to support OPERABILITY of the equipment serviced by the ESW System. Therefore, the ESW System and normal heat sink are required to be OPERABLE in these MODES.

(continued)

BASES

APPLICABILITY (continued)

In MODES 4 and 5, the OPERABILITY requirements of the ESW System and normal heat sink are determined by the systems they support, and therefore the requirements are not the same for all facets of operation in MODES 4 and 5. Thus, the LCOs of the systems supported by the ESW System and normal heat sink will govern ESW System and normal heat sink OPERABILITY requirements in MODES 4 and 5.

ACTIONS

A.1

With one ESW subsystem inoperable, the ESW subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE ESW subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE ESW subsystem could result in loss of ESW function.

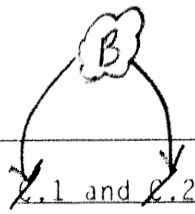
The 7 day Completion Time is based on the redundant ESW System capabilities afforded by the OPERABLE subsystem, the low probability of an event occurring during this time period, and is consistent with the allowed Completion Time for restoring an inoperable DG.

B.1

With water temperature of the normal heat sink > 90°F and ≤ 92°F, the design basis assumptions associated with the initial normal heat sink temperature are bounded provided the temperature of the normal heat sink when averaged over the previous 24 hour period is ≤ 90°F. To ensure that the 92°F normal heat sink temperature limit is not exceeded, Required Action B.1 is provided to more frequently monitor the temperature of the normal heat sink. The Unit 3 normal heat sink temperature is measured from the Unit 3 intake canal. The once per hour completion time takes into consideration normal heat sink temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the normal heat sink exceeds 90°F when averaged over the previous 24 hour period or the water temperature of the normal heat sink exceeds 92°F, Condition C must be entered immediately.

(continued)

BASES



ACTIONS (continued)

~~C.1 and C.2~~

If the ESW System cannot be restored to OPERABLE status within the associated Completion Time, or both ESW subsystems are inoperable, or the normal heat sink 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 12 hours and in MODE 4 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 3.7.2.1

This SR verifies the water level in the pump bay of the pump structure to be sufficient for the proper operation of the ESW pumps (the pump's ability to meet the minimum flow rate and anticipatory actions required for flood conditions are

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1 (continued)

considered in determining these limits). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.2.2

Verification of the normal heat sink temperature ensures that the heat removal capability of the ESW and HPSW systems is within the DBA analysis. The Unit 3 normal heat sink temperature is measured from the Unit 3 intake canal. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

The water temperature is measured by averaging multiple instruments that measure the normal heat sink temperature.

SR 3.7.2.3

Verifying the correct alignment for each manual and power operated valve in each ESW subsystem flow path provides assurance that the proper flow paths will exist for ESW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be automatically realigned to its accident position within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

This SR is modified by a Note indicating that isolation of the ESW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ESW System. As such, when all ESW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the ESW System is still OPERABLE.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)