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Exelon SM
Nuclear

10 CFR 50.90

RS-01-149

August 2, 2001

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

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Subject: Request for Technical Specifications Change
Revision to the Technical Specification 3.7.9, "Ultimate Heat Sink"

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," we are proposing a temporary change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-72 and NPF-77 for the Braidwood Station, Units 1 and 2.

Technical Specification (TS) 3.7.9, "Ultimate Heat Sink (UHS)," Surveillance Requirement (SR) 3.7.9.2 verifies that the average water temperature of the UHS is $\leq$ 100°F every 24 hours as measured at the discharge of the operating Essential Service Water (SX) pumps. With the average water temperature of the UHS > 100°F, the UHS must be declared inoperable in accordance with Condition A. With the UHS inoperable, Condition A requires that both units be placed in Mode 3, i.e., Hot Standby, within six hours and Mode 5, i.e., Cold Shutdown, within 36 hours. The proposed temporary change increases the average temperature limit of the UHS from 100°F to 102°F through September 30, 2001.

Prolonged hot weather in the area has resulted in sustained elevated UHS temperatures. High temperatures and humidity during the daytime in conjunction with little cooling at night and little precipitation have resulted in elevated water temperatures in Braidwood Station's UHS. There are no controllable measures that can be taken to immediately reduce the temperature of the UHS in that reduction of the heat input by derating the units would have a negligible short-term effect on the temperature of the UHS.

We request approval of the proposed change as soon as possible to avoid a potential shutdown of Braidwood Station, Units 1 and 2. The average temperature of the UHS reached 98°F on July 22, 2001. Continued hot weather conditions through the summer may result in the temperature exceeding the TS limit of 100°F. We request this change be made effective immediately upon issuance and we intend to implement this proposed temporary change upon issuance until its expiration on September 30, 2001. Should the need for this amendment

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become urgent, we will request that the NRC process this amendment request on an exigent basis.

This proposed amendment request is subdivided as follows.

1. Attachment A gives a description and safety analysis of the proposed change.

2. Attachment B-1 includes the marked-up TS page with the proposed change indicated. Attachment B-2 includes the associated typed page with the proposed change incorporated.

3. Attachment C describes our evaluation performed using the criteria in 10 CFR 50.91(a)(1), "Notice for public comment," which provides information supporting a finding of no significant hazards consideration using the standards in 10 CFR 50.92(c), "Issuance of amendment."

4. Attachment D provides information supporting an environmental assessment and a finding that the proposed change satisfies the criteria for a categorical exclusion.

This proposed change has been reviewed by the Braidwood Station Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the Quality Assurance Program.

Exelon Generation Company, LLC is notifying the State of Illinois of this application for a change to the TS 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 Ms. Kelly M. Root at (630) 663-7292.

Respectfully,

K. A. Ainger

K.A. Ainger
Director - Licensing
Mid-West Regional Operating Group

Affidavit

Attachments:
Attachment A: Description and Safety Analysis of the Proposed Change
Attachment B-1: Marked-Up TS Page for Proposed Change
Attachment B-2: Incorporated TS Page for Proposed Change
Attachment C: Information Supporting a Finding of No Significant Hazards Consideration
Attachment D: Information Supporting an Environmental Assessment

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - Braidwood Station
Office of Nuclear Facility Safety - Illinois Department of Nuclear Safety

STATE OF ILLINOIS	)	
COUNTY OF DUPAGE	)	
IN THE MATTER OF	)	
EXELON GENERATION CO., LLC	)	**Docket Numbers**
BRAIDWOOD STATION UNITS 1 AND 2	)	**STN 50-456 AND STN 50-457**

SUBJECT: Request for Technical Specifications Change
Revision to the Technical Specification 3.7.9, "Ultimate Heat Sink"

AFFIDAVIT

I affirm that the content of this transmittal is true and correct to the best of my knowledge, information and belief.

K.A. Ainger
Director - Licensing
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and for the State above named, this 2nd day of August, 2001.

Notary Public

" OFFICIAL SEAL "
Timothy A. Byam
Notary Public, State of Illinois
My Commission Expires 11/24/2001

ATTACHMENT A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGE

A. SUMMARY OF PROPOSED CHANGE

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," we are proposing a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-72 and NPF-77 for the Braidwood Station, Units 1 and 2.

Technical Specification (TS) 3.7.9, "Ultimate Heat Sink (UHS)," Surveillance Requirement (SR) 3.7.9.2 verifies that the average water temperature of the UHS is $\leq$ 100°F every 24 hours as measured at the discharge of the operating Essential Service Water (SX) pumps. With the average water temperature of the UHS > 100°F, the UHS must be declared inoperable in accordance with Condition A. With the UHS inoperable, Condition A requires that both units be placed in Mode 3, "i.e., Hot Standby," within six hours and Mode 5, "i.e., Cold Shutdown," within 36 hours.

The proposed temporary change will increase the average temperature limit of the UHS from 100°F to 102°F through September 30, 2001.

B. DESCRIPTION OF THE CURRENT REQUIREMENTS

SR 3.7.9.2 verifies that the average water temperature of the UHS is $\leq$ 100°F every 24 hours as measured at the discharge of the operating SX pumps. The 24-hour Frequency is based on operating experience related to trending of the parameter variations during the applicable modes.

C. BASES FOR THE CURRENT REQUIREMENTS

The basis of TS 3.7.9 is that the UHS provides a heat sink for processing and operating heat from safety related components during a transient or accident, as well as during normal operation. This is done by utilizing the SX System and the Component Cooling Water (CC) System.

The UHS consists of an excavated essential cooling pond integral with the main cooling pond, and the piping and valves connecting the pond with the SX System pumps. The two principal functions of the UHS are the dissipation of residual heat after reactor shutdown, and dissipation of residual heat after an accident.

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. The UHS is sufficiently oversized to permit a minimum of 30 days of operation with no makeup.

D. NEED FOR REVISION OF THE REQUIREMENT

Prolonged hot weather in the area has resulted in sustained elevated UHS temperatures. High temperatures and humidity during the daytime in conjunction with little cooling at night and little precipitation have resulted in elevated water temperatures in Braidwood Station's UHS. There are no controllable measures that can be taken to immediately reduce the temperature of the UHS in that reduction of the heat input by derating the units would have a negligible short-term effect on the temperature of the UHS.

E. DESCRIPTION OF THE PROPOSED CHANGES

The proposed change revises SR 3.7.9.2 as follows.

> "Verify average water temperature of UHS is $\leq$ 100°F after September 30, 2001 ($\leq$ 102°F through September 30, 2001)."

F. SAFETY ANALYSIS OF THE PROPOSED CHANGES

We are requesting the proposed temporary change to SR 3.7.9.2 in order to avoid placing Braidwood Station, Units 1 and 2 in a shutdown condition, and to avoid cycling the units through a thermal transient. The integrity of the reactor vessel and other components of the Reactor Coolant System (RCS) can be adversely affected by the number of thermal transients they are subjected to during their lifetime. As each additional thermal transient can affect this integrity, it is prudent to avoid such transients provided the health and safety of the public is preserved. Assessments of the components served by SX and an evaluation of the impact on containment response and transient analyses demonstrate that there is no increase in risk as a result of the proposed temperature increase.

The UHS is the sink for heat removed 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 operating limits are based on conservative heat transfer analyses for the worst case Loss of Coolant Accident (LOCA). The UHS is designed in accordance with Regulatory Guide (RG) 1.27, "Ultimate Heat Sink for Nuclear Power Plants," Revision 2.

Current design basis analyses support an SX temperature of 100°F. Further assessments of the components served by SX were performed for an SX temperature of 102°F. These assessments evaluated the operation of and the components needed to support operation of the CC water closed loop system, the Reactor Containment Fan Coolers (RCFCs), the Emergency Diesel Generators (EDG), the Auxiliary Feedwater (AF) pumps, the SX pumps, the Emergency Core Cooling System (ECCS) pumps, the Containment Spray (CS) pumps, and the Main Control Room (MCR) chillers. The components needed to support operation of the above equipment include oil coolers, room cubicle coolers, and jacket water cooling systems.

The following is a summary of the assessments of the components served by SX.

- CC heat exchanger

  Normal Operation

  The main components served by the CC System during normal plant operation are the Spent Fuel Pool (SFP) heat exchangers, Reactor Coolant Pumps (RCP) Thermal Barrier, Letdown heat exchanger, Seal Water heat exchanger, Containment Penetration Cooling, and RCP Motor Radial Bearing Oil Coolers. The proposed increase in SX temperature limit of 2°F is conservatively judged to result in a corresponding increase in the maximum normal operating CC temperature from 105°F to 107°F.

  1. The current heat load in the SFP is significantly lower than the limiting heat load experienced during a refueling outage. During normal operation, the impact of the temporary CC temperature increase of 2°F on the SFP temperature is bounded by the design basis analyses. In addition, when the worst case heat load due to a full core offload is added to the SFP, SFP temperature remains bounded by the design basis analyses.
  2. The postulated increase in CC temperature from 105°F to 107°F results in an RCP thermal barrier CC inlet temperature that remains below the thermal barrier limit of 120°F.
  3. RCS letdown flow can be established at 75 or 120 gpm. Typically letdown flow is maximized at 120 gpm to achieve optimum chemistry conditions. A slight increase in CC temperature to the Letdown heat exchanger can be accommodated by reducing letdown flow to 75 gpm.
  4. The Seal Water heat exchanger cools the RCP seals return flow (about 12 gpm). The discharge flow from the Seal Water heat exchanger is routed to the outlet of the Volume Control Tank. At this point, this water mixes with the balance of charging flow and enters the suction header to the Charging (CV) pumps. Considering the magnitudes of the seal water flow and the balance of the charging flow, a temporary 2°F increase in seal water temperature will have an insignificant impact on the temperature of the water supply to the CV pumps.
  5. CC water is supplied to the cooling coils in a number of mechanical containment penetrations that serve high energy piping (i.e., Main Steam, Main Feedwater, etc.) The function of the cooling coils is to maintain the temperature of the concrete within specified limits. A worst case temporary increase in concrete temperature of 2°F will not result in short term or long term degradation of the concrete.
  6. RCP motor radial bearing temperatures during normal plant operation are significantly lower (i.e., about 130°F to 150°F) than the operational limit of 195°F. An increase in CC temperature of 2°F will continue to maintain these temperatures significantly below limits.

  Normal Shutdown

  1. The CC System also supplies the RHR heat exchangers for RCS cooling during normal unit shutdowns. The small increase in CC temperature may slightly increase the time to cooldown. However, the ability to achieve and maintain adequate shutdown cooling is not affected.

2. The CC System also supplies cooling to the shell side of the seal cooler for each RHR pump. A temporary increase of 2°F in the seal water temperature will have no significant impact on the life of the RHR pumps' mechanical seals.

- RCFCs. An SX temperature of 100°F is assumed for the inlet temperature to the RCFC in the design basis analysis. The design basis analysis assumes 10% tube plugging. Under the current plant condition of no tubes plugged, RCFC performance with an SX temperature of 102°F was determined to be bounded by the existing design basis analysis.

- EDG jacket water heat exchanger. An SX temperature of 100°F is assumed for the inlet temperature to the EDG jacket water heat exchanger. The design basis analysis assumes approximately 8% tube plugging, while the actual tube plugging level is < 1% in any EDG jacket water heat exchanger. This represents an increase in the actual available heat transfer area, which has been determined to offset the increase in SX temperature of 2°F. The EDG jacket water heat exchanger is considered the limiting component based on the available tube plugging margin.

- AF Pump. The SX System cools the diesel driven AF pump closed cycle heat exchanger and is the safety related suction supply to the AF pumps.

  1. The diesel driven AF pump closed cycle heat exchanger is designed for a maximum SX cooling water temperature of 102°F and, therefore, no further evaluation was required.
  2. SX is the safety related suction supply to the AF System. Accident analyses assume a maximum AF enthalpy that corresponds to a water temperature in excess of 120°F. Therefore, increasing the SX temperature to 102°F has no impact on accident analyses assumptions with regard to AF maximum temperature.
  3. The Net Positive Suction Head (NPSH) calculation for the AF pump assumes a temperature of 120°F. Therefore, an increase in SX temperature to 102°F has no impact on the calculated $NPSH_{available}$ for the AF pump.

- SX pump. The increase in SX temperature from 100°F to 102°F results in a reduction in $NPSH_{available}$ of < 0.2 ft. This reduction is insignificant as the available margin between $NPSH_{required}$ and $NPSH_{available}$ is in excess of 8 ft.

- Cubicle Coolers, Lube Oil Coolers, and other ECCS support equipment. It is conservatively assumed that an increase in SX temperature of 2°F could result in an increase in the equipment operating temperatures of as much as 2°F.

  1. A temporary increase of 2°F to environmentally qualified equipment operating environments, as a result of lake temperature, is insignificant for the following reasons. The Braidwood Environmental Qualification (EQ) Program conservatively assumes the maximum continuous area temperature for the normal operating environment when calculating the qualified life of safety-related equipment. The existing design basis calculations for the cubicle coolers are based on an SX temperature of 100°F. Due to the diurnal nature of the SX temperature profile and considering an SX temperature of 102°F, it is not expected that the normal environmental area temperature monitoring limits specified in the Technical Requirements Manual (TRM) will be exceeded. Furthermore, the TRM does not require action to be taken unless the temperature in the area is exceeded for greater than 8 hours or by greater than 30°F. Small increases of up to 2°F in each of the affected rooms will not impact the qualified life of the equipment.

In addition, the Auxiliary Building components are typically located in radiation only harsh environments. No credit was taken for the vendors' accident/abnormal testing. Many of the components were LOCA/High Energy Line Break (HELB) tested to temperatures in excess of 350°F for an equivalent one-year duration. Thermal aging was also performed using elevated temperatures well in excess of the expected normal ambient room temperature. Therefore, inherent margin exists to maintain equipment qualification.

2. For components cooled directly by SX (e.g., via lube oil coolers), operability of the affected components at higher temperatures has previously been demonstrated as a result of EQ documentation, survivability studies, and thermal endurance evaluations. These demonstrate operability of the equipment as a whole, i.e. bearings, lubricant, seals, and terminations; inclusive of ancillary devices, at much higher temperatures. Assuming a 2°F increase in lube oil temperatures, the corresponding effect on the operation of the affected equipment is insignificant.

- MCR Ventilation Chillers. A 2°F increase in the SX inlet temperature from 100°F to 102°F for the MCR chillers will have only a negligible effect on the normal operation of the chillers. Based on current operating conditions, the present heat load on the MCR chillers is approximately 75% of the design load. Therefore, increasing the SX inlet temperature by 2°F will have a minimal effect on chiller performance and the chillers will remain well within their design capability.

The following is based on an evaluation of Byron/Braidwood Stations' Updated Final Safety Analysis Report (UFSAR) Chapter 6 for containment response analyses and UFSAR Chapter 15 for LOCA and non-LOCA analyses.

- For containment response analyses, the UHS temperature affects the assumptions for the RCFC and the RHR heat exchanger.

  1. An SX temperature of 100°F is assumed for the inlet temperature to the RCFC in the design basis analysis. The design basis analysis assumes 10% tube plugging. Under the current plant condition of no tubes plugged, RCFC performance with SX temperature of 102°F was determined to be bounded by the existing design basis analysis. Therefore, RCFC performance is not adversely affected. The peak containment temperature and pressure and long term containment temperature profile used in EQ remain unchanged. In addition, sensitivity studies were performed on the RCFC heat removal performance curve. An RCFC heat removal performance curve conservatively based on 105°F SX temperature was used for sensitivity comparison which showed that the SX temperature change has very little impact on containment response. Other sources of margin are available in the current containment analysis, including containment initial temperature and Refueling Water Storage Tank (RWST) temperature.
  2. The SX System indirectly cools the RHR heat exchanger via the closed loop CC System during the recirculation phase of a large break LOCA (LBLOCA). An increase in SX temperature of 2°F may have a slight impact on the performance of the RHR heat exchanger, but it will not impact the post-LOCA calculated peak temperature and pressure since these peaks are reached before post-LOCA recirculation begins.

- For LOCA Peak Clad Temperature (PCT) analyses, the UHS temperature is not directly modeled or used as code input. However, it affects the assumptions for the RCFCs and RHR heat exchangers. Therefore, minimum and maximum SX temperatures are assumed

in the current LOCA analyses. A maximum temperature of 100°F was assumed for the SX water to cool the RHR heat exchangers via the CC system and a minimum SX temperature of 32°F was assumed to cool the RCFCs. It should be noted that in the LOCA PCT analysis it is conservative to maximize heat removal capacity of the RCFCs to minimize the containment pressure and, hence, maximize the peak clad temperature (PCT). Minimizing containment pressure maximizes the break flow and results in faster core uncovery.

In the LBLOCA analysis the PCT (for the limiting break) occurs within the first 100 seconds of the transient when the Safety Injection (SI) water is drawn from the RWST. Increasing the SX water temperature to 102°F will slightly impact the RHR heat exchanger cooling capacity (current analyses assumed 100°F for the maximum SX water temperature). However this will have no impact on the LBLOCA PCT, because by the time recirculation water is drawn from the sump the clad temperatures will be significantly lower and, hence, will not challenge the PCT.

In the small break LOCA (SBLOCA) the PCT occurs late in the transient. Therefore, there is a potential that the recirculation water will be drawn from the sump when the PCT occurs. The temperature of the cooling water injected into the RCS is assumed to be 212°F in the SBLOCA analysis. That is, little or no credit is taken for the RHR cooling of the sump water. Therefore, increasing the SX water temperature to 102°F will have no adverse impact on the SBLOCA PCT.

The hot leg switchover time was calculated assuming the RHR heat exchanger cools the recirculation water to 170 °F. This RHR cooling was based on a maximum SX water temperature assumption of 100 °F. Increasing the SX water temperature to 102°F will slightly impact the RHR cooling. However, enough conservatism, i.e., boron concentration uncertainty and RCS volume, exists to more than compensate for any adverse impact due to this slight increase in the SX water temperature.

- For non-LOCA analyses, the UHS temperature is not used as a direct input. Assessments of equipment and components supplied by the SX System which are relied upon to mitigate the consequences of an accident have demonstrated that sufficient margin exists to accommodate a 2°F increase in SX temperature. Therefore, equipment and components served by the SX System will continue to perform their intended safety functions with the proposed increase in SX temperature and there is no impact on non-LOCA analyses.

Other considerations, such as the impact of increasing the UHS temperature to 102°F on Generic Letter (GL) 96-06, "Assurance of Equipment Operability And Containment Integrity During Design-Basis Accident Conditions," and Station Blackout (SBO), were also evaluated. Conservatism in existing GL 96-06 analyses are sufficient to offset the increased UHS temperature, i.e., assumptions which maximize the extent of voiding and minimize the time to void collapse. The net effect would be well within the calculational uncertainty inherent in two phase hydraulic analyses. In the case of SBO, the UHS temperature was not used as a direct input. In the SBO analysis, SX is cross-tied between the non-blacked-out (NBO) and the blacked-out (BO) units. The use of a single pump to supply both units' loads during a SBO was shown by flow analysis to be acceptable. Conservatism exists in the required flow value which was established for this analysis, because in addition to the RCFCs, other components could also be isolated. Because the SBO analysis demonstrated acceptable flow values to the required components greater than or equal to minimum flow requirements, and because the assessments described above have demonstrated that the components served by SX will

perform their intended safety functions at the higher SX temperature, the proposed temperature increase will have no impact on the SBO analysis.

The risk impact associated with operation with the UHS temperature at 102°F was evaluated qualitatively. Because the proposed temperature has been determined to be acceptable for the containment pressure response, LOCA and non-LOCA analyses, there is no increase in risk associated with post-accident heat removal. In addition, specific component evaluations demonstrate acceptable component operation at the proposed SX temperature. No adverse influences on risk were identified through examination of the Probabilistic Risk Analysis (PRA) model for the plant. This supports the conclusion that there is no risk impact from increasing the UHS temperature to 102°F.

G. IMPACT ON PREVIOUS SUBMITTALS

We have reviewed the proposed change regarding its impact on any previous submittals and have determined that there is no impact on any previous submittals.

H. SCHEDULE REQUIREMENTS

We request approval of the proposed change as soon as possible. Prolonged hot weather in the area has resulted in sustained elevated UHS temperatures. The average temperature of the UHS reached 98°F on July 22, 2001. Continued hot weather conditions may result in the temperature exceeding the TS limit of 100°F. We request this change be made effective immediately upon issuance and we intend to implement this proposed temporary change upon issuance until its expiration on September 30, 2001.

ATTACHMENT B-1

MARKED-UP TS PAGE FOR PROPOSED CHANGE
BRAIDWOOD STATION, UNITS 1 AND 2

MARKED-UP TS PAGE

3.7.9-1

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 590 ft Mean Sea Level (MSL).	24 hours
SR 3.7.9.2	Verify average water temperature of UHS is ≤ 100°F. (after September 30, 2001 (≤102°F through September 30, 2001)	24 hours
SR 3.7.9.3	Verify bottom level of UHS is ≤ 584 ft MSL.	18 months

ATTACHMENT B-2

INCORPORATED TS PAGE FOR PROPOSED CHANGE
BRAIDWOOD STATION, UNITS 1 AND 2

TS PAGE

3.7.9-1

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 590 ft Mean Sea Level (MSL).	24 hours
SR 3.7.9.2	Verify average water temperature of UHS is ≤ 100°F after September 30, 2001 (≤ 102°F through September 30, 2001).	24 hours
SR 3.7.9.3	Verify bottom level of UHS is ≤ 584 ft MSL.	18 months

ATTACHMENT C

INFORMATION SUPPORTING A FINDING OF NO SIGNIFICANT HAZARDS CONSIDERATION

According to 10 CFR 50.92(c), "Issuance of amendment," a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," we are proposing a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-72 and NPF-77 for the Braidwood Station, Units 1 and 2.

Technical Specification (TS) 3.7.9, "Ultimate Heat Sink (UHS)," Surveillance Requirement (SR) 3.7.9.2 verifies that the average water temperature of the UHS is $\leq$ 100°F every 24 hours as measured at the discharge of the operating Essential Service Water (SX) pumps. With the average water temperature of the UHS > 100°F, the UHS must be declared inoperable in accordance with Condition A. With the UHS inoperable, Condition A requires that both units be placed in Mode 3, i.e., Hot Standby, within six hours and Mode 5, i.e., Cold Shutdown, within 36 hours. The proposed temporary change will increase the average temperature limit of the UHS from 100°F to 102°F through September 30, 2001.

Prolonged hot weather in the area has resulted in sustained elevated UHS temperatures. High temperatures and humidity during the daytime in conjunction with little cooling at night and little precipitation have resulted in elevated water temperatures in Braidwood Station's UHS. There are no controllable measures that can be taken to immediately reduce the temperature of the UHS in that reduction of the heat input by derating the units would have a negligible short-term effect on the temperature of the UHS.

Information supporting the determination that the criteria set forth in 10 CFR 50.92 are met for this amendment request is indicated below.

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

Analyzed accidents are assumed to be initiated by the failure of plant structures, systems or components. An inoperable Ultimate Heat Sink (UHS), which is the source of water for the Essential Service Water (SX) System, is not considered as an initiator of any analyzed events. The design basis analyses for Braidwood Station, Units 1 and 2, assume a UHS temperature of 100°F. Further assessments have been performed which assumed an SX temperature of 102°F. An UHS temperature of up to 102°F does not increase the failure

rate of systems, structures or components because the systems, structures or components have been evaluated for operation with SX temperatures of 102°F and the design allows for higher temperatures than at which they presently operate.

This higher temperature does not have a significant impact on the Loss of Coolant Accident (LOCA) analysis or Containment analysis, and the non-LOCA analyses are unaffected. Therefore, continued operation with an UHS temperature ≤ 102°F will not increase the consequences of an accident previously evaluated in the Byron/Braidwood Stations' Updated Final Safety Analysis Report (UFSAR). The proposed change does not involve any physical alteration of plant systems, structures or components. Based on the above, it has been determined that unit operation with an initial UHS temperature of ≤ 102°F at the onset of previously evaluated accidents will result in the continued ability of the equipment and components supplied by the SX System to perform their intended safety functions.

Therefore, increasing the average water temperature limit of the UHS from ≤ 100°F to ≤ 102°F does not increase the consequences of any accident previously evaluated. Raising this limit does not introduce any new equipment, equipment modifications, or any new or different modes of plant operation, nor does it significantly affect the operational characteristics of any equipment or systems.

Therefore, the proposed temporary change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

The proposed action does not involve physical alteration of the units. No new equipment is being introduced, and installed equipment is not being operated in a new or different manner. There is no significant change being made to the parameters within which the units are operated. There are no setpoints at which protective or mitigative actions are initiated that are affected by this proposed action. This proposed action will not significantly alter the manner in which equipment operation is initiated, nor will the function demands on credited equipment be changed. No alteration in the procedures that govern plant operation is proposed, and no change is being made to procedures relied upon to respond to an off-normal event. As such, no new failure modes are being introduced. The proposed action does not significantly alter assumptions made in the safety analysis. Therefore, the proposed action does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Increasing the allowed average water temperature of the UHS by 2°F in TS 3.7.9, "Ultimate Heat Sink (UHS)," has no impact on plant operation. Operating at the proposed higher temperature limit does not introduce new failure mechanisms for systems, structures or components. The engineering evaluations performed to support the change to UHS temperature limit provide the basis to conclude that the equipment will operate acceptably at elevated temperatures. The current design basis analyses and calculations assume a UHS temperature of 100°F, and contain operating margins to account for potential degradations in material condition (e.g., tube plugging) which are more severe than currently present. Together with these operating margins, design and construction codes applied to the affected structures, systems and components provide additional margins that are sufficient to accommodate the proposed temperature change.

Therefore, the proposed temporary change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The proposed action allows operation with the UHS temperature ≤ 102°F through September 30, 2001. The margin of safety is determined by the design and qualification of the plant equipment, the operation of the plant within analyzed limits, and the point at which protective or mitigative actions are initiated. The proposed action does not impact these factors. Further evaluations have determined acceptable component performance at 102°F. This temperature increase will not significantly change the operational characteristics or the design of any equipment or system. The identified equipment margins are sufficient to ensure that the post-accident response is not significantly affected. Thus, the proposed increase in temperature does not involve a significant reduction in the margin of safety.

Therefore, the proposed temporary change does not involve a significant reduction in a margin of safety.

Overall Conclusion

Based upon the above assessments and evaluations, we have concluded that the proposed temporary change to the TS involves no significant hazards consideration.

ATTACHMENT D

INFORMATION SUPPORTING AN ENVIRONMENTAL ASSESSMENT

Exelon Generation Company, LLC has evaluated the proposed change against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments." Exelon has determined that the proposed change meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9), "Criteria for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," and as such, has determined that no irreversible consequences exist in accordance with 10 CFR 50.92(b), "Issuance of amendment." This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for Protection Against Radiation," or which changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria.

The proposed temporary change will modify the average temperature limit of the UHS from 100°F to 102°F and will be in place through September 30, 2001. Prolonged hot weather in the area has resulted in sustained elevated UHS temperatures. High temperatures and humidity during the daytime in conjunction with little cooling at night and little precipitation have resulted in elevated water temperatures in Braidwood Station's UHS. There are no controllable measures that can be taken to immediately reduce the temperature of the UHS in that reduction of the heat input by derating the units would have a negligible short-term effect on the temperature of the UHS.

(i) **The proposed change involves no significant hazards consideration.**
As demonstrated in Attachment C, the proposed change does not involve any significant hazards consideration.

(ii) **There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.**
The proposed change does not allow for an increase in the unit power level, does not increase the production, nor alter the flow path or method of disposal of radioactive waste or by-products. The proposed change does not affect actual unit effluents. Therefore, the proposed change does not change the types or increase the amounts of any effluents released offsite.

(iii) **There is no significant increase in individual or cumulative occupational radiation exposure.**
The proposed change will not result in changes in the operation or configuration of the facility. There will be no change in the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposal result in any change in the normal radiation levels within the plant. Therefore, there will be no increase in individual or cumulative occupational radiation exposure resulting from the proposed change.