ATTACHMENT B
Proposed Change to Operating License and Technical Specifications for
Braidwood Station, Units 1 and 2

MARKED-UP TS PAGES FOR PROPOSED CHANGES

REVISED PAGES

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.	6 hours
	AND	
	A.2 Be in MODE 5.	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 ≤ 98°F after September 30, 1999 (≤ 100°F through September 30, 1999)	24 hours
SR 3.7.9.3	Verify bottom level of UHS is ≤ 584 ft MSL.	18 months

No change

FOR INFORMATION ONLY

B 3.7 PLANT SYSTEMS

B 3.7.9 Ultimate Heat Sink (UHS)

BASES

BACKGROUND

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 Essential Service Water (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 UHS is described in UFSAR, Section 9.2.5 (Ref. 1). 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.

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 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 UHS is also the normal heat sink for condenser cooling via the Circulating Water System. Unit operation at full power represents the UHS maximum heat load. Its maximum post accident heat load occurs 20 minutes after a design basis Loss Of Coolant Accident (LOCA). Near 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 operating limits are based on conservative heat transfer analyses for the worst case LOCA. Reference 1 provides the details of the assumptions used in the analysis, which include worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and worst case single active failure (e.g., single failure of a manmade structure). The UHS is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the UHS.

The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The UHS 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 SX System 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 SX System. To meet this condition, the UHS temperature should not exceed 98°F after September 30, 1999 (100°F through September 30, 1999) and the level should not fall below 590 ft mean sea level during normal unit operation.

APPLICABILITY

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

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

FOR INFORMATION ONLY

BASES

ACTIONS

A.1 and A.2

If the UHS 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 plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1

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 SX pumps. The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES. This SR verifies that the UHS water level is ≥ 590 ft mean sea level United States Geological Society datum.

SR 3.7.9.2

This SR verifies that the SX System is available to cool the CC 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 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES. This SR verifies that the average water temperature of the UHS is ≤ 98°F as measured at the discharge of an SX pump.

after September 30, 1999 (≤100°F through September 30, 1999)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.9.3

This surveillance verifies that the UHS contains adequate storage volume to supply the required design basis inventory to support the function of the essential service water system. SR 3.7.9.1 verifies the contained volume of the UHS, while this SR verifies that the UHS, if filled to the depth required by SR 3.7.9.1, can supply the water required to support the safety function of the system.

SR 3.7.9.3 assures that the bottom elevation of the UHS is less than or equal to 584 ft Mean Sea Level (MSL). This surveillance is performed by means of a hydrographic survey, once every 18 months. The frequency is based on engineering judgement and the likelihood that any geologic or natural event that significantly altered the bottom elevation of the UHS in a shorter period would be identified by other means.

REFERENCES

1. UFSAR, Section 9.2.5.

2. Regulatory Guide 1.27.

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.

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B 3.7 PLANT SYSTEMS

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BASES

BACKGROUND

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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.

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 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 UHS is also the normal heat sink for condenser cooling via the Circulating Water System. Unit operation at full power represents the UHS maximum heat load. Its maximum post accident heat load occurs 20 minutes after a design basis Loss Of Coolant Accident (LOCA). Near this time, the unit switches from injection to recirculation and the containment cooling systems and RHR are required to remove the core decay heat.

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The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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APPLICABILITY

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

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

ACTIONS

A.1 and A.2

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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 plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1

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SR 3.7.9.2

This SR verifies that the SX System is available to cool the CC 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 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES. This SR verifies that the average water temperature of the UHS is ≤ 98°F after September 30, 1999 (≤ 100°F through September 30, 1999), as measured at the discharge of an SX pump.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.9.3

This surveillance verifies that the UHS contains adequate storage volume to supply the required design basis inventory to support the function of the essential service water system. SR 3.7.9.1 verifies the contained volume of the UHS, while this SR verifies that the UHS, if filled to the depth required by SR 3.7.9.1, can supply the water required to support the safety function of the system.

SR 3.7.9.3 assures that the bottom elevation of the UHS is less than or equal to 584 ft Mean Sea Level (MSL). This surveillance is performed by means of a hydrographic survey, once every 18 months. The frequency is based on engineering judgement and the likelihood that any geologic or natural event that significantly altered the bottom elevation of the UHS in a shorter period would be identified by other means.

REFERENCES

1. UFSAR, Section 9.2.5.

2. Regulatory Guide 1.27.

INFORMATION SUPPORTING A FINDING OF NO SIGNIFICANT HAZARDS CONSIDERATION

ComEd has evaluated the proposed change and determined that it does not involve a significant hazards consideration. According to 10 CFR 50.92(c), 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:

> Involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated;
>
> Create the possibility of a new or different kind of accident from any previously analyzed; or
>
> Involve a significant reduction in a margin of safety.

The determination that the criteria set fourth in 10 CFR 50.92 are met for this amendment request is indicated below.

Does the 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 UHS is not considered as an initiator of any analyzed events. The analyses for Braidwood Station, Units 1 and 2, assume an UHS temperature of 100°F. Therefore, continued operation with an UHS temperature less than or equal to 100°F, until September 30, 1999, will not increase the consequences of an accident previously evaluated in the UFSAR. The proposed change does not involve any physical alteration of plant systems, structures or components. A UHS temperature of up to 100°F does not increase the failure rate of systems, structures or components because the systems, structures or components are rated and analyzed for operation with Essential Service water temperatures of 100°F and the design allows for higher temperatures than at which they presently operate.

The basis provided in Regulatory Guide 1.27 "Ultimate Heat Sink for Nuclear Power Plants," Revision 2, dated January 1976, was employed for the temperature analysis of the Braidwood Station UHS to implement General Design Criteria 44 and 2 of Appendix A to 10 CFR Part 50. This Regulatory Guide was employed for both the original design/licensing basis of the Braidwood Station UHS and a subsequent evaluation which investigated the potential for increasing the average water temperature of the UHS from ≤ 98 °F to ≤ 100 °F. The meteorological conditions chosen for the Braidwood Station UHS analysis utilized a synthetic 36-day period consisting of the most severe 5 days, most severe 1 day, and the most severe 30 days based on historical data. The heat loads selected for the UHS analysis considered one Braidwood Unit in a LOCA condition concurrent with a Loss Of Offsite Power (LOOP) and the remaining Braidwood unit

undergoing a normal plant shutdown. In the analysis, these heat loads are removed by the UHS using only SX pumps. The main condenser cooling pond is conservatively assumed not to be available at the start of the event. The analysis shows that with an initial UHS temperature of 100°F, the required heat loads can be met for 30 days while maintaining essential service water temperatures at acceptable values.

Based on the above facts and reasoning, it has been demonstrated that the increase of the initial UHS temperature from ≤ 98 °F to ≤ 100 °F at the start of the design basis event will result in the continued ability of the equipment and components supplied by the SX system to perform their safety functions.

Therefore, increasing the average water temperature of the UHS from ≤ 98 °F to ≤ 100 °F in TS 3.7.9, has no impact on any analyzed accident. Raising this limit does not introduce any new equipment, equipment modifications, or any new or different modes of plant operation, nor does it affect the operational characteristics of any equipment or systems. Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

The proposed action does not involve a physical alteration of the units. There is no change being made to the parameters within which the units are operated that is not bounded by the analyses. There are no setpoints at which protective or mitigative actions are initiated that are affected by this proposed action. This proposed action will not 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 ensure the units remain within analyzed limits, 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 alter assumptions made in the safety analysis.

Increasing the average water temperature of the UHS in TS 3.7.9 has no impact on plant operation. The proposed temperature limits does not introduce new failure mechanisms for systems, structures or components. The engineering analyses performed to support the UHS temperature increase provides the basis to conclude that the equipment is designed for operation at elevated temperatures. In addition, design and construction codes provided sufficient margin to accommodate the proposed temperature change.

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

Does the change involve a significant reduction in a margin of safety?

The proposed action allows operation with the UHS temperature ≤ 100°F until September 30, 1999. The margin defined by the difference in the assumed steady state SX temperature and the calculated SX temperature profile integrated over the duration of the event is not significantly impacted. 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. There are no required design changes or equipment performance parameter changes associated with this change. No protection setpoints are affected as a result of this change. This temperature increase will not change the operational characteristics of the design of any equipment or system. All accident analysis assumptions and conditions will continue to be met. Thus, the proposed increase in temperature does not involve a significant reduction in the margin of safety.

Conclusion

Therefore, based upon the above evaluation, ComEd has concluded that these changes involve no significant hazards consideration.

ATTACHMENT D

Proposed Change to Operating License and Technical Specifications for Braidwood Station, Units 1 and 2

INFORMATION SUPPORTING AN ENVIRONMENTAL ASSESSMENT

We have evaluated this proposed exigent temporary Technical Specification change against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. We have determined that this requested action meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9) and as such, we have determined that no irreversible consequences exist in accordance with 10 CFR 50.92(b). 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 that reflects a requirement with respect to the use of a facility component located within the restricted area, as defined in 10 CFR 20, and the action meets the following specific criteria:

A. The proposed action involves no significant hazards consideration. As demonstrated in Attachment C of this submittal, this proposed action does not involve any significant hazards consideration.

B. There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite. The proposed action does not affect the generation of any radioactive effluent. The proposed action would allow the operation of Braidwood Station, Units 1 and 2, for a limited period of time with the UHS > 98°F. However, the resulting overall increase in risk until September 30, 1999 is minimal. Plant equipment would operate as expected in the event of an accident to minimize the potential for any leakage of radioactive effluents.

C. There is no significant increase in individual or cumulative occupational radiation exposure. The proposed action will not change the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposed action 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 this change.