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10 CFR 50.90

RS-06-021

March 13, 2006

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Request for a License Amendment to Technical Specification 3.7.3, "Ultimate Heat Sink."

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) is requesting a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. Surveillance Requirement (SR) 3.7.3.1 verifies the cooling water temperature supplied to the plant from the Core Standby Cooling System (CSCS) pond (i.e., the Ultimate Heat Sink (UHS)) is ≤ 100°F. Currently, if the temperature of the cooling water supplied to the plant from the CSCS pond is > 100°F, the UHS must be declared inoperable in accordance with TS 3.7.3. TS 3.7.3, Required Action B.1, requires that both units be placed in Mode 3 within 12 hours and Required Action B.2 requires that both units be placed in Mode 4 within 36 hours.

Prolonged hot weather in the area during the summer months, in conjunction with high humidity during the daytime, minimal cooling at night and little precipitation, has resulted in sustained elevated cooling water temperature supplied to the plant from the CSCS pond.

This license amendment is being sought to increase the temperature limit of the cooling water supplied to the plant from the CSCS pond to ≤ 101.5°F by reducing the temperature measurement uncertainty by replacing the existing thermocouples with higher precision temperature measuring equipment. Should the UHS indicated temperature exceed 101.5°F, Required Action B.1 would be entered and both units would be placed in Mode 3 within 12 hours and Mode 4 within 36 hours.

This proposed change is supported by an engineering evaluation of the instrument loop uncertainty values associated with the new precision temperature measuring equipment. With a higher precision method of temperature monitoring there is an increased instrument loop

accuracy and a corresponding reduction in the uncertainty value assumed in the heat removal calculations supporting the design basis events evaluated in the current analysis.

The replacement of the existing thermocouples with the new precision temperature measuring equipment for Unit 1 is planned for the Unit 1 Refueling Outage 11 currently scheduled for February 2006. The Unit 2 temperature equipment replacement is anticipated to be completed online prior to June 2006.

The attached amendment request is subdivided as shown below.

Attachment 1 provides an evaluation of the proposed change.

Attachment 2 provides a summary of the engineering evaluation of the instrument loop uncertainty values for the new precision measuring equipment.

Attachment 3 includes the markup TS page with the proposed changes indicated.

Attachment 4 includes the associated typed TS page with the proposed changes incorporated.

Attachment 5 includes the typed TS Bases pages with the proposed changes incorporated. The TS Bases pages are provided for information only, and do not require NRC approval.

EGC requests approval of the proposed change by August 1, 2006, prior to when elevated CSCS pond temperatures are expected. EGC intends to implement this proposed change within 30 days of issuance.

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

EGC is notifying the State of Illinois of this application for a change to the TS by sending a copy of this letter and its attachments to the designated State Official in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b).

Should you have any questions concerning this letter, please contact Ms. Alison Mackellar at (630) 657-2817.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 13th day of March 2006.

Respectfully,

Keith R. Jury

Keith R. Jury
Director, Licensing and Regulatory Affairs

Attachment 1: Evaluation of Proposed Change
Attachment 2: Summary of the Engineering Evaluation for the New Precision Measuring RTDs
Attachment 3: Mark-up of Proposed Technical Specifications Page Change
Attachment 4: Typed Page for Technical Specifications Change
Attachment 5: Typed Pages for Technical Specifications Bases Page Changes

ATTACHMENT 1
Evaluation of Proposed Change

INDEX

1.0 DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) is requesting a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. Surveillance Requirement (SR) 3.7.3.1 verifies the cooling water temperature supplied to the plant from the Core Standby Cooling System (CSCS) pond (i.e., the Ultimate Heat Sink (UHS)) is ≤ 100°F. Currently, if the temperature of the cooling water supplied to the plant from the CSCS pond is > 100°F, the UHS must be declared inoperable in accordance with TS 3.7.3. TS 3.7.3, Required Action B.1, requires that both units be placed in Mode 3 within 12 hours and Required Action B.2 requires that both units be placed in Mode 4 within 36 hours.

Prolonged hot weather in the area during the summer months, in conjunction with high humidity during the daytime, minimal cooling at night and little precipitation, has resulted in sustained elevated cooling water temperature supplied to the plant from the CSCS pond.

This license amendment is being sought to increase the temperature limit of the cooling water supplied to the plant from the CSCS pond to ≤ 101.5°F by reducing the temperature measurement uncertainty by replacing the existing thermocouples with higher precision temperature measuring equipment. Should the UHS indicated temperature exceed 101.5°F, Required Action B.1 would be entered and both units would be placed in Mode 3 within 12 hours and Mode 4 within 36 hours.

Since the proposed increase in the allowable indicated temperature is based solely on a reduction of the existing instrument loop uncertainty value, there is no change in the containment pressure response, Loss of Coolant Accident (LOCA) and non-LOCA analyses, and there is no increase in risk associated with the post-accident heat removal. In addition, there are no identified adverse influences on risk associated with any other Design Basis Accident (DBA) and therefore, a Probabilistic Risk Analysis (PRA) assessment is not needed for this change.

This proposed change is supported by an engineering evaluation of the instrument loop uncertainty values associated with the new precision temperature measuring equipment. With a higher precision method of temperature monitoring there is an increased instrument loop accuracy and a corresponding reduction in the uncertainty value assumed in the heat removal calculations supporting the design basis events evaluated in the current analysis.

The replacement of the existing thermocouples with the new precision temperature measuring equipment for Unit 1 is planned for the Unit 1 Refueling Outage 11 currently scheduled for February 2006. The Unit 2 temperature equipment replacement is anticipated to be completed online prior to June 2006.

EGC requests approval of the proposed change by August 1, 2006, prior to when elevated CSCS pond temperatures are expected. EGC intends to implement this proposed change within 30 days of issuance.

2.0 PROPOSED CHANGES

The proposed change to SR 3.7.3.1 is identified as follows:

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify cooling water temperature supplied to the plant from the CSCS pond is ≤ 101.5°F.	24 hours

3.0 BACKGROUND

The UHS provides a heat sink for process and operating heat from safety related components during a transient or accident, as well as during normal operation. The Residual Heat Removal Service Water System (RHRSW) and Diesel Generator Cooling Water System (DGCW) are the principal safety systems that provide the heat rejection capability for the plant.

The UHS consists of an excavated CSCS pond integral with the cooling lake. The volume of the CSCS pond is sized to permit the safe shutdown and cooldown of both units for a 30-day period with no additional makeup water source available for normal and accident conditions. The UHS is the heat sink for heat removed from both units' reactor cores following all postulated accidents and anticipated operational occurrences in which the units are cooled down and placed in Residual Heat Removal (RHR) operation. The function of the CSCS pond is to provide for cooling of the RHR heat exchangers, diesel generator coolers, CSCS cubicle area cooling coils, RHR pump seal coolers, and Low Pressure Core Spray (LPCS) pump motor cooling coils. The CSCS pond provides indirect heat rejection for the containment through the RHR heat exchangers. The CSCS pond also provides a backup source of emergency makeup water for spent fuel pool cooling and can provide water for fire protection equipment. Neither the ability to provide emergency makeup water for spent fuel pool cooling nor fire protection is limited by heat rejection considerations. The operating limits for heat rejection capability are based on conservative heat transfer analyses for the design basis LOCA.

The reduction of the existing instrument loop uncertainty value does not affect the original heat removal capability analyses and shows that with an initial UHS temperature of ≤ 101.5°F, the required heat removal capability can be achieved for 30 days without challenging the design bases of the mitigation systems.

Prolonged hot weather in the area over the past few summers has resulted in sustained elevated cooling water temperature supplied to the plant from the CSCS pond. High temperatures and humidity during the daytime, in conjunction with minimal cooling at night and little precipitation, have resulted in elevated water temperatures in the LSCS UHS. Continued hot weather conditions in the future may result in the temperature of the CSCS cooling pond challenging the current TS limit of 100°F.

This license amendment is being sought to increase the temperature limit of the cooling water supplied to the plant from the CSCS pond to ≤ 101.5°F by reducing the temperature

measurement uncertainty by replacing the existing thermocouples with higher precision temperature measuring equipment. Should the UHS temperature exceed 101.5°F, Required Action B.1 would be entered and both units would be placed in Mode 3 within 12 hours and Mode 4 within 36 hours.

4.0 TECHNICAL ANALYSIS

The UHS removes heat from both units' reactor cores following all postulated accidents and anticipated operational occurrences in which the units are cooled down and placed in Residual Heat Removal (RHR) operation. The function of the CSCS pond is to provide for cooling of the RHR heat exchangers, diesel generator coolers, CSCS cubicle area cooling coils, RHR pump seal coolers, and Low Pressure Core Spray (LPCS) pump motor cooling coils. The CSCS pond provides indirect heat rejection for the containment through the RHR heat exchangers.

The safety design bases for UHS is documented in the LSCS Updated Final Safety Analysis Report (UFSAR). The UHS is designed in accordance with Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," Revision 1, dated March 1974, which requires a 30-day supply of cooling water in the UHS. The basis provided in Regulatory Guide 1.27, was employed for the temperature analysis of the LSCS UHS to implement General Design Criteria 2, "Design bases for protection against natural phenomena," and Criteria 44, "Cooling water," of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants."

The operating limits for heat rejection capability are based on conservative heat transfer analyses for the design basis LOCA. The heat loads selected for the UHS analysis considered one LSCS Unit in a LOCA condition concurrent with a loss of off-site power (LOOP) and the remaining LSCS Unit undergoing a normal plant shutdown. The main condenser cooling lake is conservatively assumed not to be available at the start of the LOCA event/normal plant shutdown. The evaluation for the reduction of the existing instrument loop uncertainty value does not affect the conclusions of the original analysis and shows that with an initial UHS temperature of $\leq$ 101.5°F, the required heat removal capability can be achieved for 30 days without challenging the design bases of the mitigation systems.

The UHS post-accident temperature is based on current heat removal calculations that analyze for a maximum allowable inlet cooling water temperature of value of 104°F. To account for the worst-case scenario and to apply conservatism, the CSCS pond cooling water inlet temperature of 104°F consists of the current TS CSCS pond cooling water inlet maximum of 100°F, plus 2°F for transient heat up, plus another 2°F margin to account for additional conservatism.

The conservative margin of 2°F is based on the existing thermocouple instrument loop uncertainty value of approximately $\pm$ 1.8°F, with 0.2°F margin added. The analysis considering the new measuring devices will use the same peak temperature value of 104°F; however, the new analysis will assume an instrument measurement uncertainty of 0.31°F and conservatively use a bounding margin of 0.5°F; therefore the indicated UHS temperature may increase from the existing TS limit of 100°F to 101.5°F. The current accident analyses results remain unchanged since the maximum UHS temperature realized using this new analysis assumption remains unchanged.

ATTACHMENT 1
Evaluation of Proposed Change

The current Updated Final Safety Analysis Report (UFSAR) reflects an inlet temperature of 100°F plus a 2°F transient heat up for a post-accident temperature of 102°F. The UFSAR will be updated to reflect the current heat removal analyses and the reduction in measurement uncertainty with the installation of the new precision temperature measuring devices.

A summary of the engineering evaluation detailing the instrument loop uncertainty values for the new precision temperature measuring equipment is presented in Attachment 2. The new equipment will replace the existing thermocouples that provide indication to meet the UHS temperature indication requirements of SR 3.7.3.1.

There are four temperature measuring devices located in the Circulating Water (CW) inlet thermowells, (i.e., two per unit), that provide input to the Plant Process Computer which are used to verify the UHS cooling water temperature supplied to the plant from the CSCS pond and therefore meet the requirements of SR 3.7.3.1. The proposed new precision temperature measuring devices will replace the existing thermocouples with new high resolution resistance temperature detector (RTD) sensing elements using the existing CW inlet thermowells.

As summarized in Attachment 2, the new instrument loop uncertainty is calculated based on the number of available temperature measuring devices and the proposed loop configurations. The uncertainty for two available instrument loops is ± 0.43°F, for three available loops is ± 0.35°F, and for four available loops is ± 0.31°F. Based on this evaluation, a bounding margin of 0.5°F was assumed to determine the proposed TS limit for the CSCS pond of 101.5°F. The 0.5°F allowance for conservatism bounds the instrument uncertainty associated with a minimum of two of four operable temperature measurement devices. Should less than two total temperature measurement devices be operable, a temporary temperature measuring device of equal or better precision will be installed in an acceptable location to ensure the instrument uncertainty analysis assumptions remain bounding.

TS Bases Section 3.7.3 will be updated to clarify the temperature correction for sediment level and time of day. In addition, UFSAR Figure 9.2-7, "UHS Lake Temperatures Versus Time of Day," will also be updated to reflect the new TS limit of 101.5°F. In the associated analysis, the limit of ≤101.5°F is corrected (i.e., reduced) for CSCS pond sediment level and time of day as shown in UFSAR Figure 9.2-7. This temperature limit correction is applicable for sediment levels of six inches or greater and only from 6:00 a.m. to 12:00 p.m. due to the CSCS pond temperature following a diurnal cycle (i.e., heats up during the day and cools down at night). It is unnecessary to reflect this temperature correction in the TS SR as the CSCS pond sediment level has never approached six inches based on operating history since plant startup. In addition, if the CSCS pond temperature exceeds the temperature limit, the Required Action for LCO 3.7.3, Condition B, requires that the unit be in Mode 3 within 12 hours; therefore, since the temperature correction is only applicable during a six hour window, the Condition would always be exited prior to the Required Action Completion Time of 12 hours.

Since the proposed increase in the allowable indicated temperature is based solely on a reduction of the existing instrument loop uncertainty value, there is no change in the containment pressure response, LOCA and non-LOCA analyses, and there is no increase in risk associated with the post-accident heat removal. In addition, there are no identified adverse influences on risk associated with any other DBA and therefore, a PRA assessment is not needed for this change.

Note that any future replacement of the temperature measurement instrumentation or change to the measurement location will be conducted in accordance with the requirements of 10 CFR 50.59, "Changes, tests, and experiments," to determine if the future change will require prior NRC approval.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) is requesting a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. Surveillance Requirement (SR) 3.7.3.1 verifies the cooling water temperature supplied to the plant from the Core Standby Cooling System (CSCS) pond (i.e., the Ultimate Heat Sink (UHS)) is ≤ 100°F. Currently, if the temperature of the cooling water supplied to the plant from the CSCS pond is > 100°F, the UHS must be declared inoperable in accordance with TS 3.7.3. TS 3.7.3, Required Action B.1, requires that both units be placed in Mode 3 within 12 hours and Required Action B.2 requires that both units be placed in Mode 4 within 36 hours.

Prolonged hot weather in the area during the summer months, in conjunction with high humidity during the daytime, minimal cooling at night and little precipitation, has resulted in sustained elevated cooling water temperature supplied to the plant from the CSCS pond.

This license amendment is being sought to increase the temperature limit of the cooling water supplied to the plant from the CSCS pond to ≤ 101.5°F by reducing the temperature measurement uncertainty by replacing the existing thermocouples with higher precision temperature measuring equipment. Should the UHS indicated temperature exceed 101.5°F, Required Action B.1 would be entered and both units would be placed in Mode 3 within 12 hours and Mode 4 within 36 hours.

Since the proposed increase in the allowable indicated temperature is based solely on a reduction of the existing instrument loop uncertainty value, there is no change in the containment pressure response, Loss of Coolant Accident (LOCA) and non-LOCA analyses, and there is no increase in risk associated with the post-accident heat removal. In addition, there are no identified adverse influences on risk associated with any other Design Basis Accident (DBA) and therefore, a Probabilistic Risk Analysis (PRA) assessment is not needed for this change.

This proposed change is supported by an engineering evaluation of the instrument loop uncertainty values associated with the new precision temperature measuring equipment. With a higher precision method of temperature monitoring there is an increased instrument loop accuracy and a corresponding reduction in the uncertainty value assumed in the current heat removal calculations supporting the design basis events evaluated in the current analysis.

The replacement of the existing thermocouples with the new precision temperature measuring equipment for Unit 1 is planned for the Unit 1 Refueling Outage 11 currently scheduled for February 2006. The Unit 2 temperature equipment replacement is anticipated to be completed online prior to June 2006.

According to 10 CFR 50.92, "Issuance of amendment," paragraph (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:

(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 support of this determination, an evaluation of each of the three criteria set forth in 10 CFR 50.92 is provided below regarding the proposed license amendment.

1. The proposed TS change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change will allow the indicated temperature of the cooling water supplied to the plant from the CSCS pond to be increased to ≤ 101.5°F based on reducing the temperature measurement uncertainty by replacing the existing thermocouples with higher precision temperature measuring equipment.

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. As such, there is not a significant increase in the probability of a previously evaluated accident. Allowing the UHS to operate at a higher allowable indicated temperature, but still within the design limits of the equipment it supplies, will not affect the failure probability of that equipment. The current heat analyses calculations of record for LSCS, Units 1 and 2, assume a UHS temperature of 100°F and post-accident peak inlet temperature of 104°F. The proposed temperature increase is based solely on a reduction of the existing instrument loop uncertainty value. The current analysis bounds the proposed change. This higher allowable indicated temperature does not impact the LOCA Peak Clad Temperature Analysis, LOCA Containment Analysis or the non-LOCA analyses; therefore, continued operation with a UHS temperature > 100°F but ≤ 101.5°F will not increase the consequences of an accident previously evaluated in the UFSAR.

Based on the above information, the increase in the allowable indicated temperature of the cooling water supplied to the plant from the UHS to ≤ 101.5°F by reducing the existing instrument loop uncertainty value has no effect on the result of the design basis event and will continue to allow each required heat exchanger to perform its safety function. The heat exchangers will continue to provide sufficient cooling for the heat loads during the most severe 30-day period.

Based on the above information, increasing the allowable indicated temperature of the cooling water supplied to the plant from the CSCS pond from ≤ 100°F to ≤ 101.5°F by reducing the instrument uncertainty value has no impact on any analyzed accident;

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

2. **The proposed TS change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The proposed change involves replacing the presently installed thermocouples with higher accuracy temperature measurement equipment. This proposed action will not alter the manner in which equipment is operated, nor will the functional 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. Raising the UHS temperature limit does not introduce any new or different modes of plant operation, nor does it affect the operational characteristics of any safety-related equipment or systems; as such, no new failure modes are being introduced. The proposed action reduces the instrument uncertainty value but does not alter assumptions made in the safety analysis.

Increasing the allowable indicated temperature of the cooling water supplied to the plant from the CSCS pond from $\leq 100°F$ to $\leq 101.5°F$ has no impact on safety related systems. The plant is designed such that the RHR pumps on the unit undergoing the LOCA/LOOP conditions would start upon the receipt of a signal, and would load onto their respective Emergency Diesel Generators emergency bus during the LOOP event. The increase in the allowable indicated temperature of the cooling water supplied to the plant from the CSCS pond will not require operation of additional RHR pumps; therefore, system operation is unaffected by the proposed change in the UHS temperature limit.

Based on the above information, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **The proposed TS change does not involve a significant reduction in a margin of safety.**

The proposed change allows an increase in the allowable indicated temperature of the cooling water supplied to the plant from the CSCS pond to $\leq 101.5°F$. 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 as the analyzed peak inlet temperature of the UHS is unaffected based on the improved instrument uncertainty of the new high precision temperature measurement instrumentation. No setpoints are affected, and no other change is being proposed in the plant operational limits as a result of this change. All accident analysis assumptions and conditions will continue to be met. Adequate design margin is available to ensure that the required margin of safety is not significantly reduced.

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

Based on the above evaluation, EGC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c).

5.2 Applicable Regulatory Requirements/Criteria

The design of the Ultimate Heat Sink (UHS) must satisfy the requirements of 10 CFR 50.36, "Technical Specifications," paragraph (c)(2)(ii), Criterion 3. These requirements state the following:

> (ii) A Technical Specification Limiting Condition for Operation (TS LCO) 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 UHS temperature limit from TS 3.7.3, "Ultimate Heat Sink," and therefore the Criterion 3 of 10 CFR 50.36(c)(2)(ii) continues to be met.

General Design Criteria 2, "Design bases for protection against natural phenomena," and General Design Criteria 44, "Cooling water," of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," provides design considerations for the UHS. Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," Revision 1, dated March 1974, provides an acceptable approach for satisfying this criterion. The basis provided in Regulatory Guide 1.27, Revision 1, was employed for the temperature analysis of the LSCS UHS.

The reduction of the existing instrument loop uncertainty value does not affect the results of the heat removal calculations and shows that with an initial UHS temperature of $\leq$101.5°F, the post accident heat loads can be removed for 30 days without challenging the design bases of the mitigation systems.

This change is supported by an engineering evaluation for the instrument loop uncertainty values for the new precision temperature measuring equipment. With a higher precision method of temperature monitoring there is an increased instrument loop accuracy and a corresponding reduction in the uncertainty value utilized in the current analyzed heat removal calculations for mitigation of the design basis events.

Since the proposed temperature increase is based solely on a reduction of the existing instrument loop uncertainty value, there is no change in the containment pressure response, LOCA and non-LOCA analyses, and there is no increase in risk associated with the post-accident heat removal. In addition, there are no identified adverse influences on risk associated with any other Design Basis Accident (DBA) and therefore, a Probabilistic Risk Analysis (PRA) assessment is not needed for this change.

Impact on Previous Submittals/Precedent

EGC has previously submitted and subsequently withdrawn a temporary amendment to increase the UHS temperature limit for LaSalle County Station, Units 1 and 2, dated August 2, 2001 as documented in References 1, 2 and 3. This request was withdrawn based on the temporary nature of the amendment and the moderation of local area temperature conditions.

6.0 ENVIRONMENTAL EVALUATION

EGC has evaluated this proposed operating license amendment consistent with 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." EGC has determined that this proposed change meets the criteria for a categorical exclusion set forth in paragraph (c)(9) of 10 CFR 51.22, "Criterion 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 paragraph (b) of 10 CFR 50.92, "Issuance of amendment." This determination is based on the fact that this change is being proposed as an amendment to the 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:

(i) The amendment involves no significant hazards consideration.

As demonstrated in Section 5.1, "No Significant Hazards Consideration," 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 effluent that may be released offsite.

The proposed change does not result in an increase in power level, does not increase the production nor alter the flow path or method of disposal of radioactive waste or byproducts. The proposed action would allow the operation of LSCS Units 1 and 2 with an increase in the allowable indicated temperature of the cooling water supplied to the plant from the CSCS pond up to ≤ 101.5°F; however, all accident analyses limits are met. It is expected that all plant equipment would operate as designed in the event of an accident to minimize the potential for any leakage of radioactive effluents; thus, there will be no change in the amounts of radiological effluents released offsite.

Based on the above evaluation, the proposed change will not result in a significant change in the types or significant increase in the amounts of any effluent released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

There is no net increase in individual or cumulative occupational radiation exposure due to the proposed change. 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.

Based on the above information, there will be no increase in individual or cumulative occupational radiation exposure resulting from this change.

7.0 REFERENCES

1. Letter from K. A. Ainger (Exelon Generation Company, LLC) to NRC, "Application for Amendment to Technical Specifications Surveillance Requirement for the Ultimate Heat Sink Temperature," dated August 2, 2001

2. Letter from T.W. Simpkin (Exelon Generation Company, LLC) to NRC, "Withdrawal of License Amendment Requests Related to the Ultimate Heat Sink Temperature for the Braidwood and LaSalle County Stations," dated September 21, 2001

3. Letter from NRC to O. D. Kingsley (Exelon Generation Company, LLC), "LaSalle County Station, Units 1 and 2 – Withdrawal of Amendment Request (TAC Nos. MB 2564 and MB2565)," dated October 1, 2001

ATTACHMENT 2

Summary of the Engineering Evaluation for the New Precision RTDs

LASALLE COUNTY STATION

ATTACHMENT 2
Summary of the Engineering Evaluation for the New Precision RTDs

Purpose

The purpose of the LaSalle County Station (LSCS) Engineering evaluation was to determine instrument loop uncertainty values for proposed new precision temperature measuring devices that will replace the existing thermocouples that provide indication to meet the Ultimate Heat Sink (UHS) temperature indication requirements of Surveillance Requirement (SR) 3.7.3.1.

The four temperature measuring devices are located in the Circulating Water (CW) inlet thermowells, (i.e., two per unit), and provide input to the Plant Process Computer (PPC). The proposed new precision temperature measuring devices will replace the existing thermocouples, 1(2) CW010/011 (i.e., input to computer points F285/F286), with new resistance temperature detector (RTD) temperature sensing elements and new temperature comparators, and will relocate the computer inputs to the appropriate type I/O input cards.

Scope

The scope of the Engineering evaluation was to calculate the instrument loop uncertainty values for the new temperature instrument loops based on the number of available measurement devices and the proposed new loop configurations. The new instrument loops will consist of the following components: high accuracy RTD temperature elements, temperature comparators (to allow using the existing thermocouple cables), precision input resistors at the field input to the I/O card, and the Data to Analog (D/A) conversion in the PPC I/O equipment. The loop components evaluated have the following specifications:

- New Minco RTDs in the existing thermowells (replacing the existing thermocouples)
    - Repeatability: ±0.2°F
    - Drift: ±0.2°F
- New ifm® efector600 TR2432 temperature compensator modules
    - Accuracy: ±0.54°F
    - Drift: negligible
- PPC I/O input card (including precision input signal resistor)
    - Accuracy: ±0.025% of full scale (30°F to 120°F)
    - Drift negligible

ATTACHMENT 2
Summary of the Engineering Evaluation for the New Precision RTDs

Detailed Evaluation

The loop consists of a high-accuracy platinum Minco RTD, one signal converter (ifm® TR2432 or similar), the input signal resistor at the input to the I/O card, and the A/D conversion by the PPC I/O.

Component 1: Minco RTDs

Component Equipment Identifications:

1TE-CW010
2TE-CW010
1TE-CW011
2TE-CW011

Repeatability: ±0.2°F
Drift: ±0.2°F

These two error terms are combined to determine the overall uncertainty for the RTD temperature sensors by calculating the Square Root Sum of the Squares (SRSS).

$$\pm [(0.2°F)^2 + (0.2°F)^2]^{1/2} = \pm 0.28°F$$ (for each RTD)

Component 2: ifm® TR2432

Component EIDs: 1TT-CW010
2TT-CW010
1TT-CW011
2TT-CW011

Accuracy: ±0.54°F
Drift: negligible

± 0.54 °F (for each instrument)

Component 3: A/D conversion at the RTP I/O card

Accuracy: ±0.025% of full scale (30°F to 120°F)
Drift: negligible

(0.00025 × 90°F) = 0.0225°F

± 0.023 °F (for each instrument)

Loop accuracy is then determined by calculating the SRSS of the individual component accuracy numbers.

$$\pm [(0.28°F)^2 + (0.54)^2 + (0.023)^2]^{1/2} = \pm 0.61°F$$

± 0.61 °F (for each individual instrument loop)

Therefore for this new loop configuration, the resulting loop accuracy is **± 0.61°F**

To obtain a more accurate value of the UHS temperature using these new precision instruments, the average of the four values can be taken. This assumes that the four readings are reading the same input temperature and that there is little effect between the input and the measurement point.

$$T_{CWAverage} = \frac{T_{1TE-CW010} + T_{1TE-CW011} + T_{2TE-CW010} + T_{2TE-CW011}}{4}$$

In all of these cases the final uncertainty is the SRSS of the individual instrument loop uncertainties considering the multiplier for each of the uncertainties is one divided by the number of instrument loops that are being averaged.

.

$$e_{Average} = \sqrt{\left(\frac{e_1}{n}\right)^2 + \left(\frac{e_2}{n}\right)^2 + \left(\frac{e_3}{n}\right)^2 + \bullet\ \bullet\ \bullet\ \bullet + \left(\frac{e_n}{n}\right)^2}$$

.

If all of the instrument loops are identical then this equation will reduce to

$$e_{Average} = \frac{e_i}{\sqrt{n}}$$

The accuracy of the average of the readings for two loops will be:

$$e_{Average} = \frac{0.61}{\sqrt{2}} = 0.43\ °F$$

The accuracy of the average of the readings for three loops will be:

$$e_{Average} = \frac{0.61}{\sqrt{3}} = 0.35°F$$

The accuracy of the average of the readings for four loops will be:

$$e_{Average} = \frac{0.61}{\sqrt{4}} = 0.31\,°\text{F}$$

ATTACHMENT 3

Markup of Proposed Technical Specifications Page Change

LASALLE COUNTY STATION

REVISED TS PAGE

3.7.3-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify cooling water temperature supplied to the plant from the CSCS pond is ≤ ~~100°F.~~ 101.5°F	24 hours
SR 3.7.3.2	Verify sediment level is ≤ 1.5 ft in the intake flume and the CSCS pond.	24 months
SR 3.7.3.3	Verify CSCS pond bottom elevation is ≤ 686.5 ft.	24 months

ATTACHMENT 4

Typed Page

for

Technical Specifications Change

LASALLE COUNTY STATION

REVISED TS PAGE

3.7.3-2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.3.1	Verify cooling water temperature supplied to the plant from the CSCS pond is ≤ 101.5°F.	24 hours
SR 3.7.3.2	Verify sediment level is ≤ 1.5 ft in the intake flume and the CSCS pond.	24 months
SR 3.7.3.3	Verify CSCS pond bottom elevation is ≤ 686.5 ft.	24 months

ATTACHMENT 5

Typed Pages of Proposed

Technical Specifications Bases

Page Changes

for

LASALLE COUNTY STATION

REVISED TS BASES PAGES

B 3.7.3-2 to B 3.7.3-5

BASES

APPLICABLE SAFETY ANALYSES (continued)

The UHS post-accident temperature is based on heat removal calculations (Ref. 5) that analyze for a maximum allowable inlet cooling water temperature of 104°F. To account for the worst-case scenario and to apply conservatism, the CSCS pond cooling water inlet temperature of 104°F consists of the CSCS pond TS temperature maximum of 101.5°F plus 2°F for transient heat up and diurnal effect, plus another 0.5°F margin (Ref. 6) to account for additional conservatism.

There are four temperature measuring devices located in the Circulating Water inlet thermowells (i.e., two per unit) and the 0.5°F allowance for conservatism bounds the instrument uncertainty associated with a minimum of two of four operable temperature measurement devices. Should less than two total temperature measurement devices be operable, a temporary temperature measuring device will be installed in an acceptable location to remain bounded by the instrument uncertainty analysis assumptions.

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

LCO

OPERABILITY of the UHS is based on a maximum water temperature being supplied to the plant of 101.5°F and a minimum pond water level at or above elevation 690 ft mean sea level. In addition, to ensure the volume of water available in the CSCS pond is sufficient to maintain adequate long term cooling, sediment deposition (in the intake flume and in the pond) must be $\leq$ 1.5 ft and CSCS pond bottom elevation must be $\leq$ 686.5 ft.

APPLICABILITY

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

In MODES 4 and 5, the OPERABILITY requirements of the UHS are determined by the systems it supports. Therefore, the requirements are not the same for all facets of operation in MODES 4 and 5. The LCOs of the systems supported by the UHS will govern UHS OPERABILITY requirements in MODES 4 and 5.

(continued)

BASES (continued)

ACTIONS

A.1

If the CSCS pond is inoperable, due to sediment deposition > 1.5 ft (in the intake flume, CSCS pond, or both) or the pond bottom elevation > 686.5 ft, action must be taken to restore the inoperable UHS to an OPERABLE status within 90 days. The 90 day Completion Time is reasonable based on the low probability of an accident occurring during that time, historical data corroborating the low probability of continued degradation (i.e., further excessive sediment deposition or pond bottom elevation changes) of the CSCS pond during that time, and the time required to complete the Required Action.

B.1 and B.2

If the CSCS pond cannot be restored to OPERABLE status within the associated Completion Time, or the CSCS pond is determined inoperable for reasons other than Condition A (e.g., inoperable due to the temperature of the cooling water supplied to the plant from the CSCS pond > 101.5°F), 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 3.7.3.1

Verification of the temperature of the water supplied to the plant from the CSCS pond ensures that the heat removal capabilities of the RHRSW System and DGCW System are within the assumptions of the DBA analysis. To ensure that the maximum post-accident temperature (i.e., 104°F) of water supplied to the plant is not exceeded, the temperature during normal plant operation must be ≤ 101.5°F.

In the associated analysis, the limit of ≤ 101.5°F is corrected (i.e., reduced) for CSCS pond sediment level and time of day as shown in Reference 4. This temperature limit correction is applicable for sediment levels of six inches or greater and only from 6:00 a.m. to 12:00 p.m. due to the CSCS pond temperature following a diurnal cycle (i.e., heats

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1 (continued)

up during the day and cools down at night). It is unnecessary to reflect this temperature correction in the TS SR as the CSCS pond sediment level has never approached six inches based on operating history since plant startup. In addition, if the CSCS pond temperature exceeds the temperature limit, the Required Action for LCO 3.7.3, Condition B, requires that the unit be in Mode 3 within 12 hours; therefore, since the temperature correction is only applicable during a six hour window, the Condition would always be exited prior to the Required Action Completion time of 12 hours.

The temperature limit accounts for the CSCS pond design requirement that it provide adequate cooling water supply to the plant (i.e., temperature ≤ 104°F) for 30 days without makeup, while taking into account solar heat loads and plant decay heat during the worst historical weather conditions.

The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.

SR 3.7.3.2

This SR ensures adequate long term (30 days) cooling can be maintained, by verifying the sediment level in the intake flume and the CSCS pond is ≤ 1.5 feet. Sediment level is determined by a series of sounding cross-sections compared to as-built soundings. The 24 month Frequency is based on historical data and engineering judgment regarding sediment deposition rate.

SR 3.7.3.3

This SR ensures adequate long term (30 days) cooling can be maintained, by verifying the CSCS pond bottom elevation is ≤ 686.5 feet. The 24 month Frequency is based on historical data and engineering judgment regarding pond bottom elevation changes.

(continued)

BASES (continued)

REFERENCES

1. Regulatory Guide 1.27, Revision 2, January 1976.

2. UFSAR, Section 9.2.1.

3. UFSAR, Section 9.2.6.

4. UFSAR, Figure 9.2-7.

5. EC #334017, Rev. 0, "Increased Cooling Water Temperature Evaluation to a new Maximum Allowable of 104°F."

6. EC #359093, Rev. 0, "Determination of Loop Uncertainty Values for Proposed new Circulating Water Inlet Instrument Loops."