

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

April 11, 2008

10 CFR 50.90

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

Serial No. 08-0152
NLOS/GDM R2
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
PROPOSED LICENSE AMENDMENT REQUEST
INCREASED MAXIMUM SERVICE WATER TEMPERATURE LIMIT
REQUEST FOR ADDITIONAL INFORMATION (RAI)

By letter dated June 25, 2007 (Serial No. 07-0401), Virginia Electric and Power Company (Dominion) requested amendments, in the form of changes to the Technical Specifications (TS) to Facility Operating License Numbers DPR-32 and DPR-37 for Surry Power Station Units 1 and 2, respectively. The proposed change increases the maximum service water temperature limit from 95°F to 100°F. The proposed change is necessary to proactively address observed increases in service water intake temperatures during the past two summers, which have approached the existing TS limit.

In a letter dated March 13, 2008, the NRC staff requested additional information to facilitate their review of the proposed license amendment request. The NRC questions and Dominion's response are provided in the attachment.

The additional information provided herein does not affect the significant hazards consideration determination or environmental assessment that was previously provided in support of the proposed license amendment request.

cc: U.S. Nuclear Regulatory Commission
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ATTACHMENT

**LICENSE AMENDMENT REQUEST TO INCREASE
THE MAXIMUM SERVICE WATER TEMPERATURE LIMIT**

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION

**Virginia Electric and Power Company
(Dominion)
Surry Power Station Units 1 and 2**

**Response to NRC Request for Additional Information
Increase in Maximum Service Water Temperature Limit**

Surry Power Station Units 1 and 2

By letter dated June 25, 2007 (Serial No. 07-0401), Virginia Electric and Power Company (Dominion) requested amendments, in the form of changes to the Technical Specifications (TS) to Facility Operating License Numbers DPR-32 and DPR-37 for Surry Power Station Units 1 and 2, respectively. The proposed change increases the maximum service water temperature limit from 95°F to 100°F. The proposed change is necessary to proactively address observed increases in service water intake temperatures during the past two summers, which have approached the existing TS limit. In a letter dated March 13, 2008, the NRC staff requested additional information to facilitate their review of the proposed license amendment request. Dominion's response to the NRC questions is provided below.

NRC Question No. 1

The licensee stated in the license amendment request (Reference 1) and again in the response to RAI 1.a (Reference 2) that the component cooling water heat exchanger (CCHX) outlet temperature was constrained to 120°F and that this is the same temperature that was used in the evaluations with a maximum service water (SW) temperature of 95°F. The NRC staff is unable to verify that 120°F was used as the CCHX outlet temperature for cooling component cooling water system safety-related loads. Please provide the technical basis for the 120°F CCHX outlet temperature being acceptable for all design and licensing basis conditions.

Dominion Response

A special test was performed on a CCHX in February 2007 to determine heat exchanger fouling and tubeside differential pressure at various SW flows. This information was used to calculate operability curves for different levels of tube plugging and SW temperatures (up to 101°F).

The existing CCHX calculations (pre-2007) used conservative fouling levels derived from testing in the late 1980's. Since then, the CCHXs have been replaced and a chemical treatment system added to limit fouling on the SW side of the heat exchangers.

Data from the 2007 testing was also used to analyze the required cooldown scenarios (e.g., dual unit shutdown following a LOOP, single unit shutdown with two trains operating, and single unit shutdown with one train operating). The calculations demonstrated that the CCHXs would be capable of meeting cooldown requirements with inlet SW temperature of 101°F for these conditions. For these calculations, the

CCHX outlet temperature was limited to 120°F, consistent with the original Westinghouse functional requirements for balance of plant interface systems.

NRC Question No. 2

Updated Final Safety Analysis Report (UFSAR) Section 9.4.1.1.1, "Component Cooling Water System," (Reference 3) states in part: "Each heat exchanger is also capable of removing half of the heat load occurring four hours after a shutdown of one unit under conditions representing the maximum allowable cooldown rate." Is this still accurate with an SW temperature of 100°F? Please provide the technical basis.

Dominion Response

As indicated in the response to Question 1 above, calculations were performed to demonstrate that the CCHXs would be capable of meeting cooldown requirements with an inlet SW temperature of 101°F for the required cooldown scenarios. These calculations demonstrated that the cooling capability of a single CCHX exceeded one half of the projected heat load occurring four hours after a shutdown of one unit under conditions representing the maximum allowable cooldown rate.

NRC Question No. 3

The response to RAI 4 (Reference 2) states that ". . . for a maximum SW temperature of 100°F, the diesel jacket outlet water temperature will not exceed 200°F. . . ." with no explanation of how this temperature was determined. Please provide the technical basis for the diesel jacket outlet water temperature not exceeding 200°F.

Dominion Response

The subject of minimum cooling water supply flow for the jacket cooling system was previously discussed with a diesel field technical representative and documented in a plant calculation. The representative stated that the jacket cooling system (i.e., heat exchanger and pump) is sized to limit the jacket cooling water temperature rise to 100°F above the external cooling medium (i.e., SW) temperature. Thus, for a 101°F SW inlet temperature, the jacket cooling water outlet temperature would be approximately 201°F. Testing of the jacket cooling system was performed, and the results indicated that the available SW cooling flow was greater than that required to limit the jacket cooling water temperature rise to 100°F.

During operation, the jacket cooling water temperature is procedurally controlled within a range of 165°F-185°F by a thermostat in the diesel cooling loop and by the operator using a manual valve on the SW cooling loop. The jacket cooling water high temperature switches are set at 205°F to maintain the maximum operating temperature of the jacket water below the 210°F limit listed in the vendor technical manual.