November 15, 2007

Mr. David A. Christian
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION, UNIT NOS. 1 AND 2, ISSUANCE OF AMENDMENTS RE: ALTERNATE USE OF GOTHIC CODE FOR RECIRCULATION SPRAY SYSTEM - EXIGENT CIRCUMSTANCES (TAC NOS. MD7033 AND MD7034)

Dear Mr. Christian:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 256 to Renewed Facility Operating License No. DPR-32 and Amendment No. 255 to Renewed Facility Operating License No. DPR-37 for the Surry Power Station, Unit Nos. 1 and 2, respectively. The amendments add a license condition to authorize changes to your licensing basis in response to your application dated October 22, 2007, as supplemented by letters dated November 2 and November 9, 2007.

These amendments allow you to change your licensing basis as described in the Surry Power Station, Unit Nos. 1 and 2, Updated Final Safety Analysis Report. The revision allows an alternate methodology from that previously approved in Topical Report DOM-NAF-3-0.0-P-A, *GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures Inside Containment.*

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

R. A. Jervey, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

Enclosures:
1. Amendment No. 256 to DPR-32
2. Amendment No. 255 to DPR-37
3. Safety Evaluation

cc w/encls: See next page

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DATE	11/15 /07	11/ 15 /07	11 / 15/07	11/15/07

OFFICE	OGC	NRR/LPL2-1/BC
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DATE	11/15/07	11/15/07

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Surry Power Station, Units 1 & 2

cc:

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VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 256
Renewed License No. DPR-32

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated October 22, 2007, as supplemented November 2 and November 9, 2007, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes as indicated in the attachment to this license amendment, and paragraph 3.B of Renewed Facility Operating License No. DPR-32 is hereby amended to read as follows:

   (B) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 256, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. Further, Renewed Facility Operating License No. DPR-32 is amended to add a new license condition, 3.P.(3) which reads:

   (3) VEPCO is authorized to revise the Updated Final Safety Analysis Report (UFSAR) to allow implementation of an Alternative GOTHIC Containment Analysis Methodology as set forth in the licensee's application dated October 22, 2007, and as supplemented on November 2, 2007 and November 9, 2007.

4. This license amendment is effective as of its date of issuance and shall be implemented within 30 days. Implementation of the amendment includes the incorporation into the UFSAR of the changes as described in the licensee's application dated October 22, 2007 and supplemented by letters dated November 2 and November 9, 2007, and evaluated in the NRC staff's safety evaluation dated November 15, 2007. The licensee shall submit the UFSAR changes as authorized by this amendment in accordance with 10 CFR 50.71(e).

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Evangelos C. Marinos, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. DPR-32

Date of Issuance: November 15, 2007

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 255
Renewed License No. DPR-37

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated October 22, 2007, as supplemented November 2 and November 9, 2007 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes as indicated in the attachment to this license amendment, and paragraph 3.B of Renewed Facility Operating License No. DPR-37 is hereby amended to read as follows:

   (B) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 255, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. Further, Renewed Facility Operating License No. DPR-37 is amended to add a new license condition, 3.P.(3) which reads:

   (3) VEPCO is authorized to revise the Updated Final Safety Analysis Report (UFSAR) to allow implementation of an Alternative GOTHIC Containment Analysis Methodology as set forth in the licensee's application dated October 22, 2007, and as supplemented on November 2, 2007 and November 9, 2007.

4. This license amendment is effective as of its date of issuance and shall be implemented within 30 days. Implementation of the amendment includes the incorporation into the UFSAR of the changes as described in the licensee's application dated October 22, 2007 and supplemented by letters dated November 2 and November 9, 2007, and evaluated in the NRC staff's safety evaluation dated November 15, 2007. The licensee shall submit the UFSAR changes as authorized by this amendment in accordance with 10 CFR 50.71(e).

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Evangelos C. Marinos, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes License No. DPR-37

Date of Issuance: November 15, 2007

ATTACHMENT

TO LICENSE AMENDMENT NO. 256

RENEWED FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

AND

TO LICENSE AMENDMENT NO. 255

RENEWED FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NO. 50-281

Replace the following pages of the Licenses with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
License	License
License No. DPR-32, page 3	License No. DPR-32, page 3
License No. DPR-32, page 5	License No. DPR-32, page 5
-	License No. DPR-32, page 6
License No. DPR-37, page 3	License No. DPR-37, page 3
License No. DPR-37, page 5	License No. DPR-37, page 5
License No. DPR-37, page 6	License No. DPR-37, page 6

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 256 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-32

AND

AMENDMENT NO. 255 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-280 AND 50-281

1.0 INTRODUCTION

By letter dated October 22, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072950501), as supplemented November 2 and November 9, 2007 (ADAMS Accession Nos. ML073100827and ML073130676), Virginia Electric and Power Company (the licensee) submitted a request for changes to the Surry Power Station, Unit Nos. 1 and 2 (Surry 1 and 2), licensing basis as is documented in the Updated Final Safety Analysis Report (UFSAR). The requested changes would allow modification to the methods approved by the Nuclear Regulatory Commission (NRC) in Topical Report DOM-NAF-3-0.0-P-A, to support the licensee's design, safety and operating analyses of its containment buildings. The supplements dated November 2 and November 9, 2007, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on October 30, 2007 (72 FR 61406).

2.0 REGULATORY EVALUATION

Both Surry units received their construction permits prior to the effective date established by the Commission for application of the General Design Criteria (GDC) of Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, May 21, 1971. However, the licensee's October 22, 2007, letter states that GDCs 4, 16, 38, and 50 of Appendix A to 10 CFR Part 50 were considered in preparation of this license amendment request. The staff agrees that these are the relevant GDCs.

GDC 4 requires that structures, systems and components important to safety shall be designed to accommodate the effects of environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. The

licensee's alternate approach to determining NPSH margin for the recirculation spray pumps models the expected environmental conditions.

GDC 16 requires that the reactor containment and associated systems provide an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment. The licensee's alternate approach, as discussed in the technical evaluation section of this safety evaluation, demonstrates that acceptable operation of the recirculation spray pumps will be maintained, and, therefore, containment design limits will be satisfied.

GDC 38 requires a system to remove heat from the reactor containment shall be provided in the reactor design, and that the system safety function shall be to rapidly reduce the containment pressure and temperature following any loss-of-coolant accident and to maintain the pressure and temperature at acceptably low levels. One of the systems relied upon is the recirculation spray system. The licensee's alternate approach, as discussed in the technical evaluation section of this safety evaluation, demonstrates adequate net positive suction head (NPSH) margin to ensure that the recirculation spray system will perform its safety function.

GDC 50 requires that the reactor containment be designed, together with the containment heat removal systems, to accommodate the calculated pressure and temperature conditions resulting from a loss-of-coolant accident. The licensee's alternate approach, as discussed in the technical evaluation section of this safety evaluation, demonstrates adequate NPSH margin to ensure that the recirculation spray system will perform its safety function and ensure that the containment design leakage rate will not be exceeded with sufficient margin.

3.0 TECHNICAL EVALUATION

The Dominion topical report on containment analysis describes methods, approved by the NRC staff, for calculating available net positive suction head (NPSH). These methods were found to be conservative in that they calculate a conservatively low containment accident pressure, a conservatively low sump water level, and a conservatively high sump water temperature.

The proposed amendment would allow use of an alternate methodology from that previously approved in Topical Report DOM-NAF-3-0.0-P-A, *GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures Inside Containment,* as discussed in the Surry Power Station, Unit Nos. 1 and 2, UFSAR. GOTHIC (Generation of Thermal-Hydraulic Information for Containments) is a computer code used to perform the calculations supporting this license amendment. GOTHIC is a general purpose, state-of-the-art thermal hydraulics package used for design, safety and operating analyses of nuclear power plant containments. The NRC staff has approved many licensing applications of GOTHIC. The GOTHIC methodology previously approved by the NRC staff for Surry 1 and 2 is documented in Dominion Topical Report DOM-NAF-3-0.0-P-A.

In implementing the guidance of Generic Safety Issue 191 (GSI-191), the licensee found the approved analysis methods described in the topical report to be too conservative, resulting in the prediction of two-phase flow in the recirculation pump strainer and inadequate available NPSH for the recirculation spray pumps for a "short period of time."

In order to eliminate this problem, the licensee is proposing an alternate containment analysis, also using GOTHIC. The method employs a larger liquid-vapor interface area. The interface area will be the sump pool surface area plus no more than one-half the sum of the surface areas of all the steel conductors with a surface temperature exceeding the saturation temperature at containment pressure during the period of the transient when minimum available NPSH and minimum margin to saturation on top of the strainer fins occurs. The licensee does not consider the alternate method requested herein regarding NPSH to affect the approved methods for design basis containment response calculations documented in DOM-NAF-3-0.0-P-A.

The approved methodology was used to establish boundary conditions (i.e., pressure, liquid temperature and water level) for the recirculation spray (RS) strainers being installed in the Surry 1 and 2 containment buildings. The boundary conditions are required to assess the RS strainer internal hydraulic performance following a loss-of-coolant accident (LOCA). The NRC-approved methodology contains significant conservatisms, which are included in the GOTHIC NPSH available models to maximize liquid temperatures and minimize containment pressure for design-basis containment response evaluations. However, these conservatisms are creating bulk conditions that are too conservative for application to the Surry Units 1 and 2 sump strainer performance. Specifically, for certain LOCA analyses, the overly conservative conditions result in a prediction of two-phase flow in the RS strainer for a short period of time. Therefore, an alternate containment GOTHIC analysis methodology is proposed to reduce certain overly conservative assumptions to more realistically, yet conservatively, address expected plant conditions in containment following a LOCA. The alternate method relaxes some of the conservatisms in the NPSH analysis methodology in Topical Report DOM-NAF-3-0.0-P-A. The proposed alternate methodology will be used to demonstrate that the RS pumps have adequate NPSH available throughout their required service time.

The licensee's October 22, 2007, letter proposes to reduce the conservatism by performing the containment analysis using the actual sump pool surface area (11,757 ft^2) and an additional pool surface area which represents a fraction (no more than 50%) of the total surface area of all steel conductors with a surface temperature greater than the saturation temperature at total containment pressure at "about the time" of the minimum available NPSH. This essentially increases the liquid vapor interface area for heat and mass transfer from the hotter pool water to the cooler vapor. This increases the calculated containment pressure which increases calculated available NPSH and reduces the calculated likelihood of flashing across the sump screens.

The licensee also proposes a "state point verification" which verifies that the available energy in the superheated thermal conductors is sufficient to support the effects of the increased liquid to vapor interface area (that is, increased evaporation).

The liquid-vapor interface area is adjusted as necessary to satisfy the state point check, such that a final GOTHIC analysis is limited by the more restrictive of two criteria:

(1) No more than 50% of the total surface area of the thermal conductors whose temperature is greater than the saturation temperature at total containment pressure can be added to the pool.

While the fraction of superheated conductor that would be wetted is not known exactly, this criterion is reasonable. It accounts in a general way for unwetted surfaces and surfaces which may not be completely wetted by spray flow or the break flow.

(2) The reduction in liquid mass from the base case with minimum pool area is less than 50% of the liquid that could be boiled from the stored energy in the superheated thermal conductors above T_{sat}.

This criterion states that the energy carried by the liquid mass (evaporation) between the base case and the case with increased interface area cannot be more than the energy in the superheated thermal conductors (above the saturation temperature) that produces the evaporation of liquid.

The superheated conductors are all metal thermal conductors that are superheated (i.e., their surface temperature is greater than the liquid saturation temperature at the total containment pressure) at the time of minimum strainer margin. No distinction is made between the metal conductors. Up to 50% of the total metal thermal conductor area is added to the sump pool surface.

One of the underlying assumptions of the licensee's proposal is that the physical phenomenon of evaporation from a superheated thermal conductor (e.g., the metal containment liner, metal floor gratings, etc. whose temperatures are greater than the saturation temperature at the total containment pressure) can be treated as equivalent to a pool surface. The surfaces of the metal conductors are both horizontal and vertical and the water film on vertical surfaces would be relatively thin. In addition, there may not be complete coverage, especially on the vertical surfaces in the calculation.

The licensee states that the pool and the metal thermal conductors can be considered equivalent since the containment spray and the recirculation spray systems provide coverage to 94% of the cross-sectional area above the operating deck. In addition, since the Surry 1 and 2 containment is highly compartmentalized, a significant fraction of the spray flow must travel through several floors and compartments to reach the sump pool. This would also ensure the wetting of the containment surfaces in these areas. The break flow will also contribute to maintaining some of these surfaces wet. The staff finds these assumptions appropriate and reasonable.

The staff questioned the licensee's assumption that the orientation of the surface was not significant. The licensee stated that the difference between the GOTHIC models for horizontal turbulent natural convection and vertical turbulent natural convection is less than 8%. The staff reviewed the GOTHIC equations and finds them acceptable because they are widely accepted equations.

Because of the close agreement between the correlations for horizontal and vertical heat transfer, the staff accepts the assumption that the physical phenomenon of evaporation from a superheated thermal conductor can be treated as equivalent to evaporation from the sump pool surface.

The proposed method increases the calculated liquid vapor interface area but also continues to allow heat transfer from the thermal conductors, including those superheated conductors whose surface area is included in the pool interface area. The licensee states that although this represents additional surface area providing heat transfer to the vapor space, it does not actually represent any increase in integrated heat transfer during the period of interest.

The staff concurs. The reason this is true is based on the models and their limitations in the GOTHIC computer code. Although the area (of heat transfer) is represented twice in the GOTHIC code, the pool models heat and mass transfer due to evaporation while the thermal conductor model calculates heat transfer due to turbulent natural convection. Thus, the licensee's statement that there is no increase in the calculated integrated heat transfer is correct.

The limiting recirculation spray pump available NPSH analyses for the Surry units are summarized in Table 3.6-1 of the licensee's July 28, 2006, letter to the NRC. The results for the worst pump suction and hot leg breaks are summarized in the licensee's November 9, 2007, letter to the NRC.

The licensee also stated that the most-limiting case analyses for recirculation spray strainer flashing and NPSH available involve the configuration of four recirculation spray pumps in operation and maximum containment spray flow. In this operating configuration the containment is depressurized quickly. The integrated spray flow from both the recirculation spray pumps and the containment spray pumps from the time of recirculation spray initiation to the time of minimum strainer margin is 94,000 pounds mass (lbm). The licensee calculates that the liquid pool, with the additional 40,000 ft^2 of interface area will vaporize 1548 lbm up to the time of minimum strainer margin. This comparison serves as a qualitative indication that there is sufficient water to maintain the thermal conductor surfaces covered with water.

The licensee provided the staff with the input to the GOTHIC code used for the example calculations included in the October 22, 2007, letter. The staff verified that the input was consistent with the licensee's description.

The staff performed a sensitivity study to assess a different method to reduce conservatism. One of the conservative assumptions described in Section 3.4 of the licensee's October 22, 2007, letter is that the spillage water from the vessel directly flows into the sump with no heat and mass transfer to the atmosphere or structures in the containment. If heat and mass transfer are considered from the break flow to the containment atmosphere, the energy input into the sump would be reduced. This would decrease the sump water temperature thus increasing the outside recirculation spray and inside recirculation spray pump available NPSH. To investigate this effect, the staff performed a GOTHIC analysis for the base case assuming 90% of break flow energy input to the sump used by the licensee. The result showed a negligible increase in the available NPSH from the base case.

The change proposed by the licensee credits a phenomenon that would occur, given the LOCA and containment spray actuation. This would result in wetting of the containment interior surfaces and subsequent evaporation from those surfaces with temperatures greater than the saturation temperature. The exact amount of wetting is not known, but the staff views 50% as a reasonable assumption allowing for a significant amount of unwetted area. The licensee points out that the other conservative assumptions made as part of the approved methods of Topical Report

DOM-NAF-3-0.0-P-A remain unchanged. Some of these assumptions are listed in Section 3.4 of Attachment 1 to the licensee's October 22, 2007, letter. As such, the staff considers the licensee's NPSH calculations to remain conservative. The assumptions bias the calculation to produce a lower containment pressure and a higher sump temperature than would be predicted by a more realistic calculation. It is the staff's judgment that the remaining conservative assumptions are sufficient to ensure an overall conservative calculation of available NPSH.

The NRC staff has reviewed the licensee's proposed alternate method of determining containment conditions for the analysis of sump strainer thermal hydraulics. The methods are conservative and acceptable for this application.

The modeling of debris behavior and head loss was not part of this review; however, it will be considered during the staff's review of the licensee's response to Generic Letter 2004-02.

4.0 EXIGENT CIRCUMSTANCES

The NRC's regulation at 10 CFR 50.91(a)(6) contains provisions for issuance of an amendment where the Commission finds that exigent circumstances exist, in that a licensee and the NRC must act quickly and that time does not permit the NRC to publish a *Federal Register* notice allowing 30 days for prior public comment. The exigent circumstance exists in this case in that the proposed amendment is needed to allow the licensee to restart from their fall 2007 refueling outage (RFO).

According to the licensee, the exigent situation resulted following an NRC audit the week of July 16-20, 2007. The NRC conducted an audit of the actions that had been completed, or were underway, to resolve GSI-191 containment sump issues at North Anna Power Station, Units 1 and 2 (North Anna 1 and 2). As part of the review, an NRC auditor requested documentation of subcooling margin inside the strainers, as this information was not documented in the hydraulic calculation. During subsequent review of the calculation, it was identified that dynamic head change in the strainer had not been included in the calculation. A new calculation was performed by the strainer vendor that included the dynamic head change component, and it was determined that flashing would not occur in the North Anna 1 and 2 strainers and, consequently, the North Anna 1 and 2 low head safety injection (LHSI) and RS pumps had adequate NPSH available. Upon completion of the North Anna 1 and 2 calculation, a new Surry 1 and 2 hydraulic calculation was also performed by the strainer vendor that included the dynamic head change component. It was noted that with the inclusion of this additional component, flashing was predicted to occur under certain conditions that would result in the RS pumps having inadequate NPSH available when the four RS pumps were in operation at the same time. (The LHSI strainer was determined to have adequate margin.) To resolve this concern, the approved GOTHIC containment analysis methodology for NPSH available was reviewed to determine whether the predicted flashing was in fact reasonable and whether any overly conservative assumptions could be more realistically adjusted to provide margin to eliminate the potential for flashing in the strainer. After several weeks of reviewing the GOTHIC model conservative inputs and assumptions, it was concluded that an alternate GOTHIC methodology was required to demonstrate that flashing would not occur.

This determination was just recently completed and discussed with the NRC staff on October 16, 2007. Furthermore, since an alternate methodology is required that is different than the NRC-approved methodology described in the UFSAR, the 10 CFR 50.59 review included in the design change package for the installation of the Unit 1 sump strainer during the fall 2007 RFO indicated that prior NRC approval was required before the strainer could be declared operable and before Surry Unit 1 startup could commence following the RFO. (The operability of the partially installed Surry Unit 2 strainer was addressed separately in accordance with the operability determination process.) Consequently, this Surry 1 and 2 specific need for an alternate GOTHIC containment analysis methodology was appropriately assessed in a timely fashion from the North Anna 1 and 2 audit and was only recently recognized as requiring NRC approval.

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulation at 10 CFR 50.92(c) states that the Commission may make a final determination that a license amendment 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; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) result in a significant reduction in a margin of safety.

The following determination was provided by the licensee.

1. Does the proposed amendment not involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed change does not adversely affect accident initiators or precursors and does not implement any physical changes to the facility or changes in plant operation. The proposed change does not alter or prevent the ability of structures, systems and components (SSCs) to perform their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits, rather it confirms that required SSCs [e.g., the containment sump strainers and the Recirculation Spray (RS) pumps] will perform their function as required. The Updated Final Safety Analysis Report (UFSAR) safety analysis acceptance criteria continue to be met for the proposed change. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   Response: No.

   The proposed change does not impact plant equipment design or function during accident conditions. The hydraulic performance of the GSI-191 strainers is analytically confirmed to be acceptable by using the alternate methodology proposed by this change. No changes in the methods governing normal plant operation are being

implemented. The proposed change assures that there is adequate margin available to meet safety analysis criteria and does not introduce new failure modes, accident initiators, or equipment malfunctions that would cause a new or different kind of accident. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   Response: No.

   The proposed change does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined, and the dose analysis acceptance criteria are not affected. The proposed change does not result in plant operation in a configuration outside of the analyses or design basis and does not adversely affect systems that respond to safely shutdown the plant and to maintain the plant in a safe shutdown condition. The proposed alternate GOTHIC methodology recovers a small amount of conservatism; however, the analyses to determine the sump strainer boundary conditions retain a sufficient level of conservatism and demonstrate that safety related components will continue to be able to perform their design functions. Therefore, the proposed change does not involve a significant reduction in margin of safety.

The NRC staff reviewed the no significant hazards consideration (NSHC) evaluation provided by the licensee in its application and has concluded that the three standards of 10 CFR 50.92(c) are satisfied. The NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as allowed by the criteria contained in 10 CFR 50.91.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final no significant hazards finding with respect to the amendment. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The NRC staff has concluded, based on the considerations discussed above, that: (1) the amendment does not (a) involve a significant increase in the probability or consequences of an accident previously evaluated, or (b) create the possibility of a new or different kind of accident from any previously evaluated or (c), involve a significant reduction in a margin of safety and therefore, the amendment does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (3) such activities will be conducted in compliance with the Commission's regulations, and (4) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Richard Lobel

Date: November 15, 2007