UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 9, 2023

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION, UNITS 1 AND 2, ISSUANCE OF AMENDMENT NOS. 312 AND 312, REGARDING ALTERNATE TECHNICAL SPECIFICATION ACTIONS FOR CONTROL ROD POSITION MONITORING REQUIREMENTS (EPID L-2022-LLA-0069)

Dear Mr. Stoddard:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 312 to Subsequent Renewed Facility Operating License No. DPR-32 and Amendment No. 312 to Subsequent Renewed Facility Operating License No. DPR-37 for the Surry Power Station (Surry), Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated May 11, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22131A310).

The proposed amendments would revise TS 3.12.E, "Rod Position Indication System and Bank Demand Position Indication System," for Surry, Units 1 and 2, to adopt certain changes in Technical Specification Task Force (TSTF) Traveler 547, Revision 1, “Clarification of Rod Position Requirements,” that provide alternative TS Actions to allow the position of the rod to be monitored by a means other than movable incore detectors.

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

Sincerely,

/RA/

John Klos, 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. 312 to DPR-32
2. Amendment No. 312 to DPR-37
3. Safety Evaluation

cc: Listserv

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO SUBSEQUENT RENEWED FACILITY OPERATING LICENSE

Amendment No. 312
Subsequent Renewed License
No. DPR-32

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

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 11, 2022, 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 to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Subsequent 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. 312 are hereby incorporated in the subsequent renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley

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Date: 2023.05.09 11:54:06 -04'00'

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Subsequent Renewed Facility
Operating License No. DPR-32
and Technical Specifications

Date of Issuance: May 9, 2023

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION, UNIT NO. 2

AMENDMENT TO SUBSEQUENT RENEWED FACILITY OPERATING LICENSE

Amendment No. 312
Subsequent Renewed License
No. DPR-37

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

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 11, 2022, 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 to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of the Subsequent 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. 312, are hereby incorporated in the subsequent renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley

Digitally signed by Michael T. Markley
Date: 2023.05.09 11:54:35 -04'00'

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Subsequent Renewed Facility
Operating License No. DPR-37
and Technical Specifications

Date of Issuance : May 9, 2023

ATTACHMENT TO

SURRY POWER STATION, UNITS 1 AND 2

LICENSE AMENDMENT NO. 312

SUBSEQUENT RENEWED FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

AND

LICENSE AMENDMENT NO. 312

SUBSEQUENT RENEWED FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NO. 50-281

Replace the following pages of the Licenses and the Appendix A Technical Specifications (TSs) 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-37, page 3	License No. DPR-37, page 3
TSs	TSs
3.12-11	3.12-11
-------	3.12-11a
3.12-14	3.12-14
------	3.12-14a

3. This subsequent renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

   A. <u>Maximum Power Level</u>

      The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2587 megawatts (thermal).

   B. <u>Technical Specifications</u>

      The Technical Specifications contained in Appendix A, as revised through Amendment No. 312 are hereby incorporated in the subsequent renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

   C. <u>Reports</u>

      The licensee shall make certain reports in accordance with the requirements of the Technical Specifications.

   D. <u>Records</u>

      The licensee shall keep facility operating records in accordance with the requirements of the Technical Specifications.

   E. Deleted by Amendment 65

   F. Deleted by Amendment 71

   G. Deleted by Amendment 227

   H. Deleted by Amendment 227

3. This subsequent renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

   A. Maximum Power Level

      The licensee is authorized to operate the facility at steady state reactor core power Levels not in excess of 2587 megawatts (thermal).

   B. Technical Specifications

      The Technical Specifications contained in Appendix A, as revised through Amendment No. 312 are hereby incorporated in this subsequent renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

   C. Reports

      The licensee shall make certain reports in accordance with the requirements of the Technical Specifications.

   D. Records

      The licensee shall keep facility operating records in accordance with the Requirements of the Technical Specifications.

   E. Deleted by Amendment 54

   F. Deleted by Amendment 59 and Amendment 65

   G. Deleted by Amendment 227

   H. Deleted by Amendment 227

E. <u>Rod Position Indication System and Bank Demand Position Indication System</u>

1. From movement of control banks to achieve criticality and with the REACTOR CRITICAL, rod position indication shall be provided as follows:

   a. Above 50% power, the Rod Position Indication System shall be OPERABLE and capable of determining the control rod assembly positions to within ± 12 steps of their respective group step demand counter indications.

   b. From movement of control banks to achieve criticality up to 50% power, the Rod Position Indication System shall be OPERABLE and capable of determining the control rod assembly positions to within ± 24 steps of their respective group step demand counter indications for a maximum of one hour out of twenty-four, and to within ± 12 steps otherwise.

   c. From movement of control banks to achieve criticality and with the REACTOR CRITICAL, the Bank Demand Position Indication System shall be OPERABLE and capable of determining the group demand positions to within ± 2 steps.

2. If one rod position indicator per group for one or more groups is inoperable, the following action a or b or c shall be taken:

   a. The position of the control rod assembly shall be verified indirectly using the movable incore detectors at least once per 8 hours, or

   b. The following indirect verification of control rod assembly position shall be performed using the movable incore detectors:

      (1) Within 8 hours of the rod position indicator inoperability, and

      (2) Once every 31 effective full power days thereafter, and

      (3) Within 8 hours after each unintended rod movement, and

      (4) Within 8 hours after each rod movement greater than 12 steps, and

(5) Prior to exceeding 50% RATED POWER if power is reduced below 50% RATED POWER, and

(6) Within 8 hours after reaching RATED POWER, or

c. Reduce power to less than 50% of RATED POWER within 8 hours. During operations below 50% of RATED POWER, no special monitoring is required.

rods in a group all receive the same signal to move and should, therefore, all be at the same position indicated by the group step demand counter for that group. The Bank Demand Position Indication System is considered highly precise (± 2 steps).

The Rod Position Indication System provides an accurate indication of actual rod position, but at a lower precision than the group step demand counters. This system is based on inductive analog signals from a series of coils spaced along a hollow tube. The Rod Position Indication System is capable of monitoring rod position within at least ± 12 steps during steady state temperature conditions and within ± 24 steps during transient temperature conditions. Below 50% RATED POWER, a wider tolerance on indicated rod position for a maximum of one hour in every 24 hours is permitted to allow the system to reach thermal equilibrium. This thermal soak time is available both for a continuous one hour period or several discrete intervals as long as the total time does not exceed 1 hour in any 24 hour period and the indicated rod position does not exceed 24 steps from the group step demand counter position.

When a rod position indicator fails, the position of the rod can be verified by use of the movable incore detectors once every 8 hours (TS 3.12.E.2.a). TS 3.12.E.2.b allows an alternate method of monitoring control rod position using the movable incore detector system on a less frequent periodicity (i.e., initial position verification within 8 hours and every 31 effective full power days (EFPDs) thereafter) and with additional verification performed following circumstances in which rod position may have changed or after significant changes in power level have occurred. One of these circumstances is unintended rod movement, which is defined as the release of a rod's stationary gripper when no action was demanded either manually or automatically from the rod control system. Verification that no unintended rod movement occurred is performed by monitoring the rod control system stationary gripper coil current for indications of rod movement. The 31 EFPDs verification frequency minimizes excessive use of and increased wear on the movable incore monitoring system and accommodates concurrent performance with the existing TS 4.10 surveillance requirement for determination of hot channel factors. TS 3.12.E.2.c provides the alternative of reducing power to less than 50% of RATED POWER within 8 hours.

The requirements on the rod position indicators and the group step demand counters are only applicable from the movement of control banks to achieve criticality and with the REACTOR CRITICAL, because these are the only conditions in which the rods can affect core power distribution and in which the rods are relied upon to provide required shutdown margin. The various action statement time requirements are based on operating experience and reflect the significance of the circumstances with respect to verification of rod position and potential rod misalignment. Reduction of RATED POWER to less than or equal to 50% puts the core into a condition where rod position is not significantly affecting core peaking factors. Therefore, during operation below 50% RATED POWER, no special monitoring is required. In the shutdown conditions, the operability of the shutdown banks and control banks has the potential to affect the required shutdown margin, but this effect can be compensated for by an increase in the boron concentration of the Reactor Coolant System.

The specified control rod assembly drop time is consistent with safety analyses that have been performed.

An inoperable control rod assembly imposes additional demands on the operators. The permissible number of inoperable control rod assemblies is limited to one in order to limit the magnitude of the operating burden, but such a failure would not prevent dropping of the OPERABLE control rod assemblies upon reactor trip.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 312 TO SUBSEQUENT RENEWED FACILITY

OPERATING LICENSE NO. DPR-32

AND

AMENDMENT NO. 312 TO SUBSEQUENT RENEWED FACILITY

OPERATING LICENSE NO. DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-280 AND 50-281

1.0 INTRODUCTION

By letter dated May 11, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22131A310), Virginia Electric and Power Company (the licensee, Dominion Energy Virginia), submitted a request for amendments to change the technical specifications (TS) for Surry Power Station, Units 1 and 2 (Surry, SPS).

The proposed amendments would revise TS 3.12.E, "Rod Position Indication System and Bank Demand Position Indication System," for Surry, Units 1 and 2, to adopt certain changes in Technical Specification Task Force (TSTF) Traveler 547, Revision 1, “Clarification of Rod Position Requirements,” (ML15365A610) that provide alternative TS Actions to allow the position of the rod to be monitored by a means other than movable incore detectors, but with a variation.

2.0 REGULATORY EVALUATION

2.1 System Description

In its submittal, the licensee stated:

> Reactivity control for SPS Units 1 and 2 is provided by boron dissolved in the reactor coolant, movable neutron-absorbing control rod assemblies, fixed

burnable poison rods, and/or integral fuel burnable absorber. The control rod assemblies provide reactivity control for fast shutdown, reactivity changes associated with changes in the average coolant temperature above hot-zero-power temperature (since core average coolant temperature is increased with power level), reactivity associated with any void formation, and reactivity changes associated with the power coefficient of reactivity. The control rod assemblies are divided into two categories according to their function. Thirty-two control rod assemblies compensate for changes in reactivity due to variations in operating conditions of the reactor, such as power or temperature. They are divided into four control groups or banks, each consisting of eight assemblies. Sixteen control rod assemblies provide additional shutdown reactivity and are termed shutdown assemblies. The total shutdown worth of the control rod assemblies is specified to provide adequate shutdown margin (SDM) with the most reactive assembly stuck out of the core.

When the reactor is critical, means for showing the relative reactivity status are provided by control rod assembly bank positions displayed in the Main Control Room (MCR). The position of the control rod assembly banks is directly related to the reactivity status of the reactor when at power. The axial position of the control rod assembly banks is determined by two separate and independent systems: (1) the Rod Position Indication System (RPIS), and (2) the Bank Demand Position Indication System (BDPIS), commonly referred to as the group step demand counters. These two systems provide the control room operator with redundant rod position indication to ensure compliance with the rod alignment and insertion limits specified in TS 3.12, "Control Rod Assemblies and Power Distribution Limits," and assumed in the plant accident analyses.

2.2 Description of Proposed Changes

In its submittal, the licensee stated:

> The proposed change to TS 3.12.E.2 would add new actions that provide an alternative to the "at least once every 8 hours" verification of rod position using the movable incore detectors if one rod position indicator per group for one or more groups is inoperable.

Current TS 3.12.E.2 states:

> 2. If one rod position indicator per group for one or more groups is inoperable, the position of the control rod assembly shall be verified indirectly using the movable incore detectors at least once per 8 hours. Alternatively, reduce power to less than 50% of RATED POWER within 8 hours. During operations below 50% of RATED POWER, no special monitoring is required.

Revised TS 3.12.E.2 adds a new alternative 2.b and would state (changes indicated in italic):

> *2. If one rod position indicator per group for one or more groups is inoperable, the following action* a, *b or c shall be taken:*

a. *The position* of *the control rod assembly shall be verified indirectly using the movable incore detectors at least once per 8 hours, or*

b. *The following indirect verification of control rod assembly position shall be performed using the movable incore detectors:*

(1) Within 8 hours of the rod position indicator inoperability, and
(2) Once every 31 effective full power days thereafter, and
(3) Within 8 hours after each unintended rod movement, and
(4) Within 8 hours after each rod movement greater than 12 steps, and
(5) Prior to exceeding 50% RATED POWER if power is reduced below 50% RATED POWER, and
(6) Within 8 hours after reaching RATED POWER, or

c. *Reduce power to less than 50%* of *RATED POWER within 8 hours. During operations below 50% of RATED POWER, no special monitoring is required.*

The following paragraph is also being added to the TS 3.12 Basis:

When a *rod position indicator fails, the position of the rod can be verified by use of the movable incore detectors once every 8 hours (TS 3.12.E.2.a). TS 3.12.E.2.b allows an alternate method of monitoring control rod position using the movable incore detector system on* a *less frequent periodicity (i.e., initial position verification within 8 hours and every 31 effective full power days (EFPDs) thereafter) and with additional verification performed following circumstances in which rod position may have changed or after significant changes in power level have occurred. One of these circumstances is unintended rod movement, which is defined* as *the release of* a *rod's stationary gripper when no action was demanded either manually or automatically from the rod control system. Verification that no unintended rod movement occurred is performed by monitoring the rod control system stationary gripper coil current for indications of rod movement. The 31 EFPDs verification frequency minimizes excessive use of and increased wear on the movable incore monitoring system and accommodates concurrent performance with the existing TS 4.10 surveillance requirement for determination of hot channel factors. TS 3.12.E.2.c provides the alternative of reducing power to less than 50% of RATED POWER within 8 hours.*

2.3 Reason for the Proposed Change

TS 3.12.E.2 currently requires one of two required actions to be taken if one rod position indicator per group for one or more groups is inoperable: (1) indirectly verify the position of the control rod assembly using the movable incore detectors at least once per 8 hours or (2) reduce power to less than 50% of RATED POWER within 8 hours. This 8-hour verification requirement would require using the movable incore detector system approximately ninety (90) times per month. While movable incore detector system wear does not pose a reduction in the margin of safety, excessive wear could result in a loss of functionality of the system and a plant shutdown.

The proposed change revises TS 3.12.E.2 to provide an alternative to using the moveable incore detectors every 8 hours by utilizing a different monitoring method. Specifically, a new TS action is proposed that provides an alternative of performing the rod position verification as follows: (1) within 8 hours, (2) every 31 EFPDs thereafter, (3) within 8 hours following either unintended rod movement or rod movement greater than 12 steps, and (4) after significant changes in power level. Monitoring control rod position in this alternative manner would minimize excessive use of, and increased wear on, the movable incore detector system. In addition, the 31 EFPDs verification periodicity coincides with the frequency of power distribution surveillances as required by TS 4.10, "Reactivity Anomalies," that use the movable incore detector system. The proposed revision is consistent with similar changes included in TSTF-547-A, Revision 1 (ML15365A610).

2.4 Regulatory Requirements and Guidance

The applicable Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 requirements and guidance include:

Under 10 CFR 50.90, whenever a holder of a license wishes to amend the license, including technical specifications in the license, an application for amendment must be filed, fully describing the changes desired. Under 10 CFR 50.92(a), determinations on whether to grant an applied-for license amendment are to be guided by the considerations that govern the issuance of initial licenses or construction permits to the extent applicable and appropriate. Both the common standards in 10 CFR 50.40(a), and those specifically for issuance of operating licenses in 10 CFR 50.57(a)(3), provide that there must be ‘reasonable assurance’ that the activities at issue will not endanger the health and safety of the public.

The NRC's regulatory requirements related to the content of the TSs are set forth in 10 CFR Section 50.36, "Technical specifications." This regulation requires that the TSs include items in, among other things, the following five specific categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements; (4) design features; and (5) administrative controls. The regulation does not specify the particular requirements to be included in a plant's TSs.

Paragraph 10 CFR 50.36(c)(3) states:

> Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions of operation will be met.

Per 10 CFR 50.36(a)(1), (as made applicable by 10 CFR 50.90) each applicant for an operating license includes in its application proposed technical specifications, and a "summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications."

Appendix A to Title 10 of the *Code of Federal Regulations (*10 CFR) Part 50 provides General Design Criteria (GDC) for nuclear power plants. Plant-specific design criteria are described in the plant’s Updated Final Safety Analysis Report (UFSAR).

The NRC issued construction permits for Surry Units 1 and 2 before May 21, 1971.

Consequently, Surry Units 1 and 2 were not subject to the requirements in 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” Appendix A, “General Design Criteria [GDC] for Nuclear Power Plants" (see SECY-92-223, “Resolution of Deviations Identified during the Systematic Evaluation Program,” dated September 18, 1992 (ML003763736). The conclusion was that Surry Units 1 and 2 meet the intent of the General Design Criteria (GDC) published in 1967 (draft GDCs, ML043310029). In its submittal, the licensee stated:

> The current regulatory requirements of 10 CFR 50 Appendix A that are applicable to control rod position include: General Design Criteria (GDC) 13 - Instrumentation and Control, GDC 26 - Reactivity Control System Redundancy and Capability, and GDC 28 - Reactivity Limits.

Surry Updated Final Safety Analysis Report (UFSAR) (ML22283A015), Section 1.4, “Compliance with Criteria,” Subsection 1.4.12, “Instrumentation and Control Systems,” states:

> Instrumentation and controls are provided as required to monitor and maintain within prescribed operating ranges essential reactor facility operating variables.
>
> Instrumentation and controls essential to avoid undue risk to the health and safety of the public are provided to monitor and maintain neutron flux, primary coolant pressure and temperature, and control rod assembly positions within prescribed [Instrumentation] operating ranges.
>
> The non-nuclear-regulating process and containment instrumentation measures temperatures, pressure, flow, and levels in the reactor coolant system, main steam system, containment, and auxiliary systems. Process variables required on a continuous basis for the start-up, operation, and shutdown of the unit are indicated, recorded, and controlled from the control room, into which access is supervised. The quantity and types of process instrumentation provided ensure the safe and orderly operation of all systems and processes over the full operating range of the station.

Surry UFSAR Subsection 1.4.13, “Fission Process Monitors and Controls,” states:

> Means are provided for monitoring or otherwise measuring and maintaining control over the fission process throughout core life under all conditions that can reasonably be anticipated to cause variations in the reactivity of the core.
>
> Nuclear instrumentation is provided to monitor reactor power from the source range through the intermediate range and power range up to 120% of full power. The system provides indication, control, and alarm signals for reactor operation and protection.
>
> The operational status of the reactor is monitored from the control room. When the reactor is subcritical, the relative reactivity status is continuously monitored and indicated by proportional counters located in instrument wells in the neutron shield tank adjacent to the reactor vessel. Two source detector channels supply information on multiplication while the reactor is subcritical.

> When the reactor is critical, means for showing the relative reactivity status of the reactor are provided by control rod assembly bank positions displayed in the control room. The position of the control rod assembly banks is directly related to the reactivity status of the reactor when at power, and any unexpected change in the position of the control rod assembly banks under automatic control or any change in the coolant temperature under manual control provides a direct and immediate indication of a change in the reactivity status of the reactor. Periodic sampling to determine the boric acid concentration provides a long-term means of following reactivity status.

3.0 TECHNICAL EVALUATION

In its submittal, the licensee states, in part, that:

> Although the RPIS is a primary tool for verifying TS requirements for control rod position parameters, TS 3.12.E.2 currently allows for verification of rod position using the movable incore detector system if one rod position indicator per group for one or more groups is inoperable. Provided the TS-required control rod position verification and surveillance are satisfactorily performed, there is no impact to the safety analysis assumptions. The safety analysis does not specify the manner in which parameters are verified; it only requires those parameters meet certain criteria (e.g., TS operability requirements, Core Operating Limits Reports (COLR) limits, and TS surveillance requirements acceptance criteria).
>
> SPS Units 1 and 2 TS 3.12.E ensures the rod position indicators (RPIs) are capable of determining the position of the control and shutdown rods. Proposed TS 3.12.E, Action 2.b, is consistent with TS 3.1.7, Action A.2.1, included in TSTF-547.

The submittal also states:

> Control and shutdown rod position accuracy is essential during power operation. Power peaking, ejected rod worth, or SDM limits may be violated in the event of a design basis accident with control or shutdown rods operating outside their limits and being undetected. Therefore, the acceptance criteria for rod position indication is that rod positions must be known with sufficient accuracy to verify the core is operating within the group sequence, overlap, design peaking limits, ejected rod worth and with minimum SDM. The rod positions must also be known to verify the alignment limits are preserved.

Based on the above, the NRC staff's review determined that the licensee's performance of the modified TS LCO actions and associated surveillance requirements would ensure the minimum performance level of equipment needed for safe operation of the facility. As described in the licensee's submittal, the proposed change permits an alternate method of monitoring of rod position with an inoperable rod position indicator and does not involve the installation of any new equipment or modification of any equipment and will have no impact on normal plant releases and will not increase the predicted radiological consequences of accidents postulated in the UFSAR.

The NRC staff reviewed the proposed changes in TS 3.12.E.2 to determine whether the changes are consistent with the NRC-approved TSTF-547, as modified in NUREG-1431, Volume 1, Revision 5, "Standard Technical Specifications (STS) Westinghouse Plants: Specifications" (ML21259A155). The NRC staff finds that, except for one variation, the proposed changes are consistent with the approved TSTF-547, and STS 3.1.7. The NRC staff notes that:

- The proposed TS 3.12.E Action 2.a is consistent with TSTF-547, and STS 3.1.7, Condition A.1, and is also the same as the requirement in the first sentence in the current TS 3.12.E.2.

- The proposed TS 3.12.E Action 2.b, is consistent with TSTF-547, Action A.2.1 and STS 3.1.7, Action A.2 which states:

  > Verify the position of rods with inoperable [D[Digital]]RPI indirectly by using the movable incore detectors within 8 hours, once per 31 days of full power operation thereafter, within 8 hours after discovery of each unintended rod movement, within 8 hours after each movement of rods with inoperable [D]RPI > [12] steps, prior to exceeding 50 percent rated thermal power and within 8 hours after reaching rated thermal power.

- The proposed TS 3.12.E Action 2.c is consistent with TSTF-547, and STS 3.1.7, Condition A.3 and is also the same as the requirement in the second sentence in the current TS 3.12.E.2.

The variation in the proposed TS 3.12.E from TSTF-547 is that the licensee did not incorporate Action A.2.2, "Restore inoperable [D]RPI to operable status prior to entering Startup [Mode 2] from Hot Standby [Mode 3]" that is present in TSTF-547. The licensee asserts that this required Action was included in TSTF-547 in error. The required Action A.2.2 in TSTF-547 has a logical AND with the Action A.2.1. The NRC staff reviewed the proposed variation and finds it acceptable based on the following:

- Action A.2.2 is irrelevant as the logical OR connector between Actions A.1, A.2, and A.3 would allow the licensee to transition from Action A.2.1 and Action A.2.2 into either Action A.1 or Action A.3, which do not have the requirement to restore the inoperable RPI to operable status. Since Actions A.1, A.2, and A.3 are joined by a logical OR connector, therefore any one of these Actions may be chosen. Therefore. Action A.2.2 is not needed.

- Actions A.2.1 and A.2.2 are joined with a logical AND connector which makes A.2.1 restrictive prior to entering in Mode 2 (Startup) from Mode 3 (Hot Standby). Therefore, adding a redundant TSTF-547 A.2.2 in Surry's TS 3.12.E with an AND condition to TS 3.12.E.2.b is not necessary as explained in the bullet above.

The NRC staff notes that Surry has custom TSs and does not follow the explicit MODES definitions of STS. The NRC staff agrees that the above variation would apply for the Surry's Reactor Operation transition from Hot Shutdown and is, therefore, acceptable. The licensee also noted that this variation from TSTF-547 has been approved in precedent amendments.

The regulations at 10 CFR 50.36(c) require that TSs will include items in specified categories, including LCOs. The proposed changes modify the Surry TS compatible with TSTF-547 with one variation. The NRC staff finds that the proposed changes continue to specify the remedial measures to be taken if one of these requirements is not satisfied. Based on the above, the

NRC staff finds that the proposed changes would continue to meet the requirements of 10 CFR 50.36(c)(2) and is, therefore acceptable. The NRC staff considered the proposed TS 3.12 Basis for information, but pursuant to 10 CFR 50.36(a)(1), the bases shall not become part of the technical specifications.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendments on March 2, 2023. On March 2, 2023, the State official confirmed that the Commonwealth of Virginia 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 previously issued a proposed finding that the amendments involve no significant hazards consideration published in the *Federal Register* on August 9, 2022 (87 FR 48514), and there has been no public comment on such finding. 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 Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: May 9, 2023

SUBJECT: SURRY POWER STATION, UNITS 1 AND 2, ISSUANCE OF AMENDMENT NOS. 312 AND 312, REGARDING ALTERNATE TECHNICAL SPECIFICATION ACTIONS FOR CONTROL ROD POSITION MONITORING REQUIREMENTS (EPID L-2022-LLA-0069) DATE MAY 9, 2023

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