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

May 31, 2017

Mr. Daniel G. Stoddard
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Blvd.
Glenn Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION, UNIT NOS. 1 AND 2 – ISSUANCE OF AMENDMENTS REGARDING EXTENSION OF TECHNICAL SPECIFICATION 3.14, "SERVICE WATER FLOW PATH ALLOWED OUTAGE TIMES AND DELETION OF EXPIRED TEMPORARY SERVICE WATER JUMPER REQUIREMENTS" (CAC NOS. MF7746 AND MF7747)

Dear Mr. Stoddard:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 289 to Renewed Facility Operating License No. DPR-32 and Amendment No. 289 to Renewed Facility Operating License No. DPR-37 for the Surry Power Station (Surry), Unit Nos. 1 and 2, respectively. The amendments change the Technical Specifications (TSs) in response to your application dated May18, 2016, as supplemented by letters dated February 10, 2017; March 1, 2017; and March 10, 2017.

These amendments revise Surry, Unit Nos. 1 and 2, TS 3.14, "Circulating and Service Water Systems," to extend the Allowed Outage Time (AOT) for only one operable service water (SW) flow path to the Charging Pump Service Water (CPSW) subsystem and to the Main Control Room/Emergency Switchgear Room (MCR/ESGR) air conditioning (AC) subsystem.

The license amendment requested AOT extensions from 24 hours to 72 hours for allowing only one OPERABLE SW flow path for the CPSW subsystems for Unit Nos. 1 and 2. Similarly, the license amendment requested AOT extensions from 24 hours to 72 hours for allowing only one OPERABLE SW flow path for the MCR/ESGR AC subsystems.

The proposed changes also delete the Operating License conditions, TS requirements, and TS 3.14 Basis discussion for the temporary SW jumper to the Component Cooling Heat Exchangers.

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

Sincerely,

Karen Cotton Gross

Karen Cotton Gross, 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. 289 to DPR-32
2. Amendment No. 289 to DPR-37
3. Safety Evaluation

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WASHINGTON, D.C. 20555-0001

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 289
Renewed License No. DPR-32

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

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 18, 2016, as supplemented by letters dated February 10, 2017; March 1, 2017; and March 10, 2017, 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 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. 289, are hereby incorporated in the 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 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to License No. DPR-32
and Technical Specifications

Date of Issuance: May 31, 2017

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 RENEWED FACILITY OPERATING LICENSE

Amendment No. 289
Renewed License No. DPR-37

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

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 18, 2016, as supplemented by letters dated February 10, 2017; March 1, 2017; and March 10, 2017, 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 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. 289, are hereby incorporated in the 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 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley

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

Attachment:
Changes License No. DPR-37
and Technical Specifications

Date of Issuance: May 31, 2017

ATTACHMENT

SURRY POWER STATION, UNIT NOS. 1 AND 2

LICENSE AMENDMENT NO. 289

RENEWED FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

AND

LICENSE AMENDMENT NO. 289

RENEWED FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NO. 50-281

Replace the following pages of the Facility Operating Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain margin 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
License No. DPR-32, page 9	License No. DPR-32, page 9
License No. DPR-37, page 9	License No. DPR-37, page 9
TSs	TSs
3.7-20	3.7-20
3.14-1	3.14-1
3.14-2	3.14-2

3. This 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. 289 are hereby incorporated in the 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 65

   F. Deleted by Amendment 71

   G. Deleted by Amendment 227

   H. Deleted by Amendment 227

   I. Fire Protection

   The licensee shall implement and maintain in effect the provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report and as approved in the SER dated September 19, 1979, (and Supplements dated May 29, 1980, October 9, 1980, December 18, 1980, February 13, 1981, December 4, 1981, April 27, 1982, November 18, 1982, January 17, 1984, February 25, 1988, and

E. Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such by product and special nuclear materials as may be produced by the operation of the facility.

3. This 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. 289 are hereby incorporated in this 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 54

   F. Deleted by Amendment 59 and Amendment 65

   G. Deleted by Amendment 227

   H. Deleted by Amendment 227

T. (Continued)

16. For the applicable UFSAR Chapter 14 events, Surry 1 will re-analyze the transient consistent with VEPCO's NRC-approved reload design methodology in VEP-FRD-42, Rev. 2.1-A. If NRC review is deemed necessary pursuant to the requirements of 10 CFR 50.59, the accident analyses will be submitted to the NRC for review prior to operation at the uprate power level. These commitments apply to the following Surry 1 UFSAR Chapter 14 DNBR analyses that were analyzed at 2546 MWt consistent with the Statistical DNBR Evaluation Methodology in VEP-NE-2-A: • Section 14.2.7 - Excessive Heat Removal due to Feedwater System Malfunctions (Full Power Feedwater Temperature Reduction case only); • Section 14.2.8 - Excessive Load Increase Incident; • Section 14.2.9 - Loss of Reactor Coolant Flow; and • Section 14.2.10 - Loss of External Electrical Load	Prior to operating above 2546 MWt (98.4% RP).

U. Deleted by Amendment No. 289 .

4. This renewed license is effective as of the date of issuance and shall expire at midnight on May 25, 2032.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

Samuel J. Collins, Director

Office of Nuclear Reactor Regulation

Attachment: Appendix A, Technical Specifications

Date of Issuance: March 20, 2003

T. (Continued)

16. For the applicable UFSAR Chapter 14 events, Surry 2 will re-analyze the transient consistent with VEPCO's NRC-approved reload design methodology in VEP-FRD-42, Rev. 2.1-A. If NRC review is deemed necessary pursuant to the requirements of 10 CFR 50.59, the accident analyses will be submitted to the NRC for review prior to operation at the uprate power level. These commitments apply to the following Surry 2 UFSAR Chapter 14 DNBR analyses that were analyzed at 2546 MWt consistent with the Statistical DNBR Evaluation Methodology in VEP-NE-2-A: • Section 14.2.7 - Excessive Heat Removal due to Feedwater System Malfunctions (Full Power Feedwater Temperature Reduction case only); • Section 14.2.8 - Excessive Load Increase Incident; • Section 14.2.9 - Loss of Reactor Coolant Flow; and • Section 14.2.10 - Loss of External Electrical Load	Prior to operating above 2546 MWt (98.4% RP).

U. Deleted by Amendment No. 289 .

4. This renewed license is effective as of the date of issuance and shall expire at midnight on January 29, 2033.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

Samuel J. Collins, Director

Office of Nuclear Reactor Regulation

Attachment: Appendix A, Technical Specifications

Date of Issuance: March 20, 2003

TABLE 3.7-2 (Continued)
ENGINEERED SAFEGUARDS ACTION
INSTRUMENT OPERATING CONDITIONS

Functional Unit	Total Number Of Channels	Minimum OPERABLE Channels	Channels To Trip	Permissible Bypass Conditions	Operator Actions
3. AUXILIARY FEEDWATER (continued)					
e. Trip of main feedwater pumps - start motor driven pumps	2/MFW pump	1/MFW pump	2-1 each MFW pump		24
f. Automatic actuation logic	2	2	1		22
4. LOSS OF POWER					
a. 4.16 kv emergency bus undervoltage (loss of voltage)	3/bus	2/bus	2/bus		26
b. 4.16 kv emergency bus undervoltage (degraded voltage)	3/bus	2/bus	2/bus		26
5. NON-ESSENTIAL SERVICE WATER ISOLATION					
a. Low intake canal level*	4	3	3		20
b. Automatic actuation logic	2	2	1		14
6. ENGINEERED SAFEGUARDS ACTUATION INTERLOCKS - Note A					
a. Pressurizer pressure, P-11	3	2	2		23
b. Low-low T_{avg}, P-12	3	2	2		23
c. Reactor trip, P-4	2	2	1		24
7. RECIRCULATION MODE TRANSFER					
a. RWST Level - Low-Low*	4	3	2		25
b. Automatic Actuation Logic and Actuation Relays	2	2	1		14
8. RECIRCULATION SPRAY					
a. RWST Level - Low Coincident with High High Containment Pressure*	4	3	2		20
b. Automatic Actuation Logic and Actuation Relays	2	2	1		14

Note A - Engineered Safeguards Actuation Interlocks are described in Table 4.1-A

* There is a Safety Analysis Limit associated with this ESF function. If during calibration the setpoint is found to be conservative with respect to the Setting Limit but outside its predefined calibration tolerance, then the channel shall be brought back to within its predefined calibration tolerance before returning the channel to service. The calibration tolerances are specified in a document controlled under 10 CFR 50.59.

3.14 CIRCULATING AND SERVICE WATER SYSTEMS

Applicability

Applies to the operational status of the Circulating and Service Water Systems.

Objective

To define those limiting conditions of the Circulating and Service Water Systems necessary to assure safe station operation.

Specification

A. The Reactor Coolant System temperature or pressure of a reactor unit shall not exceed 350° F or 450 psig, respectively, or the reactor shall not be critical unless:

1. The high level intake canal is filled to at least elevation +23.0 feet at the high level intake structure.
2. Unit subsystems, including piping and valves, shall be operable to the extent of being able to establish the following:
    a. Flow to and from one bearing cooling water heat exchanger.
    b. Flow to and from the component cooling heat exchangers required by Specification 3.13.
3. At least two circulating water pumps are operating or are operable.
4. Three emergency service water pumps are operable; these pumps will service both units simultaneously.

5. Two service water flow paths to the charging pump service water subsystem are OPERABLE.

6. Two service water flow paths to the recirculation spray subsystems are OPERABLE.

7. Two service water flow paths to the main control room and emergency switchgear room air conditioning subsystems are OPERABLE.

B. The requirements of Specification 3.14.A.4 may be modified to allow one Emergency Service Water pump to remain inoperable for a period not to exceed 7 days. If this pump is not OPERABLE in 7 days, then place both units in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the next 30 hours.

The requirements of 3.14.A.4 may be modified to have two Emergency Service Water pumps OPERABLE with one unit in COLD SHUTDOWN with combined Spent Fuel pit and shutdown unit decay heat loads of 25 million BTU/HR or less. One of the two remaining pumps may be inoperable for a period not to exceed 7 days. If this pump is not OPERABLE in 7 days, then place the operating unit in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the next 30 hours.

C. The requirements of Specifications 3.14.A.5 and 3.14.A.7 may be modified to allow unit operation with only one OPERABLE flow path to the charging pump service water subsystem and to the main control and emergency switchgear rooms air conditioning condensers. If the affected systems are not restored to the requirements of Specifications 3.14.A.5 and 3.14.A.7 within 72 hours, the reactor shall be placed in HOT SHUTDOWN within the next 6 hours. If the requirements of Specifications 3.14.A.5 and 3.14.A.7 are not satisfied as allowed by this Specification, the reactor shall be placed in COLD SHUTDOWN within the next 30 hours.

D. The requirements of Specification 3.14.A.6 may be modified to allow unit operation with only one OPERABLE flow path to the recirculation spray subsystems. If the affected system is not restored to the requirements of Specification 3.14.A.6 within 24 hours, the reactor shall be placed in HOT SHUTDOWN within the next 6 hours. If the requirements of Specification 3.14.A.6 are not met within an additional 48 hours, the reactor shall be placed in COLD SHUTDOWN within the next 30 hours.

Basis

The Circulating and Service Water Systems are designed for the removal of heat resulting from the operation of various systems and components of either or both of the units. Untreated water, supplied from the James River and stored in the high level intake canal is circulated by gravity through the recirculation spray coolers and the bearing cooling water heat exchangers and to the charging pumps lubricating oil cooler service water pumps which supply service water to the charging pump lube oil coolers.

In addition, the Circulating and Service Water Systems supply cooling water to the component cooling water heat exchangers and to the main control and emergency switchgear rooms air conditioning condensers. The Component Cooling heat exchangers are used during normal plant operations to cool various station components and when in shutdown to remove residual heat from the reactor. Component Cooling is not required on the accident unit during a loss-of-coolant accident. If the loss-of-coolant accident is coincident with a loss of off-site power, the nonaccident unit will be maintained at HOT SHUTDOWN with the ability to reach COLD SHUTDOWN.

The long term Service Water requirement for a loss-of-coolant accident in one unit with simultaneous loss-of-station power and the second unit being brought to HOT SHUTDOWN is greater than 15,000 gpm. Additional Service Water is necessary to bring the nonaccident unit to COLD SHUTDOWN. Three diesel driven Emergency Service Water pumps with a design capacity of 15,000 gpm each, are provided to supply water to the High Level Intake canal during a loss-of-station power incident. Thus, considering the single active failure of one pump, three Emergency Service Water pumps are required to be OPERABLE. The allowed outage time of 7 days provides operational flexibility to allow for repairs up to and

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 289 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-32

AND

AMENDMENT NO. 289 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 May 18, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16146A540), as supplemented by letters dated February 10, 2017 (ADAMS Accession No. ML17047A487); March 1, 2017 (ADAMS Accession No. ML17066A187); and March 10, 2017 (ADAMS Accession No. ML17075A256), Virginia Electric Power Company (the licensee) submitted a license amendment request (LAR) to revise Surry Power Station (Surry), Unit Nos. 1 and 2, Technical Specification (TS) 3.14, "Circulating and Service Water Systems," to extend the Allowed Outage Time (AOT) for only one operable service water (SW) flow path to the charging pump service water (CPSW) subsystem and to the main control room/emergency switchgear room (MCR/ESGR) air conditioning (AC) subsystem.

The changes requested AOT extensions from 24 hours to 72 hours for allowing only one OPERABLE SW flow path for the CPSW subsystems for Surry, Unit Nos. 1 and 2. Similarly, the license amendment requested AOT extensions from 24 hours to 72 hours for allowing only one OPERABLE SW flow path for the MCR/ESGR AC subsystems.

The proposed changes also delete the Operating License (OL) conditions, TS requirements, and TS 3.14 Basis discussion for the temporary SW jumper to the Component Cooling Heat Exchangers (CCHXs). The supplements dated February 10, 2017; March 1, 2017; and March 10, 2017, provided additional information that clarified the application, did not expand the scope of the application as originally noticed in the *Federal Register* on October 25, 2016 (81 FR 73443), and did not change the U.S. Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination.

In the determination of the acceptability of the PRA used in support of this LAR, the staff also evaluated the PRA information provided by the licensee in its July 14, 2016, submittal (ADAMS Accession No. ML16202A068). Details pertaining to the peer reviews, the peer review findings and disposition are provided in the May 18, 2016, LAR and the responses to the NRC staff RAIs, dated March 1, 2017 and March 10, 2017, generated for the ESW pump AOT extension to support the assessment of the PRA acceptability. Therefore, the NRC staff used the docketed information related to the technical adequacy of the PRA from the ESW Pump AOT submittals to support the service water flow path AOT extension consistent with the NRC staff license amendment review procedure (LIC 109).

The NRC does not approve TS Basis changes submitted as part of these amendments. However, conforming Basis page changes are included because of the deletion of TS modification on page TS 3.14-3.

2.0 REGULATORY EVALUATION

The Surry Units 1 and 2 circulating water (CW) and service water (SW) systems, which are supplied by the James River, are designed for the removal of heat resulting from the operation of various systems and components for both units. The CW system cools the main condenser, and the SW system provides cooling water to the Bearing Cooling (BC) water heat exchangers, component cooling (CC) heat exchangers, recirculation spray (RS) heat exchangers, main control room and emergency switchgear room (MCR/ESGR) air conditioning (AC) condensers (chillers), and the charging pump service water (CPSW) subsystem.

10 CFR 50.36(c)(2)(i) states, in part:

> Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.

TS 3.14.A.5 and TS 3.14.A.7 require two SW flow paths to the CPSW subsystem and to the MCR/ESGR AC subsystem, respectively, to be operable. Currently, the TS 3.14.C AOT for only one operable CPSW or MCR/ESGR AC flow path is 24 hours. The proposed revision extends the AOT for only one operable CPSW or MCR/ESGR AC flow path from 24 hours to 72 hours. The CPSW subsystem is a support system for the Charging/High Head Safety Injection (HHSI) pumps. The proposed CPSW AOT extension aligns the CPSW support system AOT with the AOT for the supported components (i.e., the Charging/HHSI pumps). The proposed MCR/ESGR AC AOT extension revises the AOT to be the same as the CPSW AOT since both subsystems share common piping. The licensee stated that the proposed increased AOTs for only one operable SW flow path to the CPSW subsystems and to the MCR/ESGR AC subsystems will provide a more reasonable time frame for performing system maintenance and repairs.

The proposed change also deletes the Operating License (OL) conditions, TS requirements, and TS 3.14 Basis discussion for the temporary SW jumper to the component cooling heat exchangers (CCHXs). These requirements were included in the Surry TS to allow cleaning, inspection, repair and recoating of the SW supply piping to the CCHXs during the Unit 1 2013 and 2015 refueling outages. These requirements have expired and are no longer necessary. The licensee described the deletion of the temporary TS requirements, and the TS 3.14 Basis discussion as administrative in nature. The TS 3.14 Basis deletion was provided to the NRC for information only.

The NRC staff may grant a licensee's request to revise the TSs, provided that the NRC staff plant-specific review supports a finding of reasonable assurance of adequate portection. The licensee presented a risk-informed justification for the new AOTs. Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-informed Decisionmaking: Technical Specifications," contains guidance to the staff for evaluation of risk-informed TS changes. STSB staff reviewed the request to ensure the proposed change meets the current regulations. The STSB staff's review and evaluation of the specific proposed change is discussed in Section 3.0 below.

Standard Review Plan (SRP), Chapter 16.1, "Risk-informed Decision Making: Technical Specifications," contains five key principles of the NRC staff's philosophy of risk-informed decisionmaking. They are: (1) the proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change; (2) the proposed change is consistent with the defense-in-depth (DID) philosophy; (3) the proposed change maintains sufficient safety margins; (4) when proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement; and (5) the impact of the proposed change should be monitored using performance measurement strategies.

SRP, Chapter 19, Section 19.1, "Determining the Technical Adequacy of Probabilistic Risk Assessment for Risk Informed License Amendment Requests After Initial Fuel Load," Septermber 2012 (ADAMS Accession No. ML12193A107), provides guidance on evaluating probabilistic risk assessment (PRA) technical adequacy.

SRP, Chapter 19, Section 19.2, "Review of Risk Information Used to Support Permanent Plant- Specific Changes to the Licensing Basis: General Guidance," June 2007 (ADAMS Accession No. ML071700658), provides general guidance for evaluating the technical basis for proposed risk-informed changes.

Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-informed Decisions on Plant-Specific Changes to the Licensing Basis," May 2011 (ADAMS Accession No. ML100910006), describes a risk-informed approach, acceptable to the NRC, for assessing the nature and impact of proposed permanent licensing basis changes by considering engineering issues and applying risk insights. This RG also provides risk acceptance guidelines for evaluating the results of such evaluations.

RG 1.177, Revision 1, "An Approach for Plant Specific, Risk-informed Decisionmaking: Technical Specifications," May 2011 (ADAMS Accession No. ML100910008), describes an acceptable risk-informed approach specifically for assessing proposed permanent TS changes in allowed outage times. This RG also provides risk acceptance guidelines for evaluating the results of such assessments.

RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-informed Activities," March 2009 (ADAMS Accession No. ML090410014), describes one acceptable approach for determining whether the quality of the PRA, in total or the parts that are used to support an application, is sufficient to provide confidence in the results, such that the PRA can be used in regulatory decisionmaking for light-water reactors.

Section 1.4 of the Updated Final Safety Analysis Report (UFSAR) lists design criteria applicable to Surry. Criteria applicable to the LAR include the following:

UFSAR Section 1.4.4, "Sharing of Systems," states, in part, that:

> Reactor facilities do not share systems or components unless it is shown that safety is not impaired by the sharing.

The SW system is a shared system.

> No impairment of the safety of the reactor facilities is caused by the sharing of any of these systems, and in certain instances such sharing enhances system reliability.

UFSAR Section 1.4.11, "Control Room," states, in part, that:

> The facility is provided with a control room from which actions to maintain the safe operation of the plant can be controlled...
>
> ...Emergency air conditioning equipment is provided within the envelope of the shielded control room and associated portions of the basement, collectively called the control and relay room area. The control room is provided with the switchyard control panel, electrical recording panels, dc distribution panels, and a control panel for the operation of the diesel generator system. The control panels contain those instruments and controls necessary for the operation of station and unit systems such as the reactor and its auxiliary systems, the turbine generator, and the steam and power conversion systems. Loading from the various station electrical distribution boards, such as the startup boards, shutdown boards, and motor control centers, is accomplished from the station control panels.
>
> The control room is common to the two units and is continuously occupied by qualified operating personnel under all operating and accident conditions.

UFSAR Section 1.4.41, "Engineered Safeguards Performance Capability," states, in part, that:

> Engineered safeguards, such as the safety injection system and the containment heat removal system, provide sufficient performance capability to accommodate the failure of any single active component without any undue risk to the health and safety of the public.

UFSAR Section 1.4.44, "Safety Injection System Capability," states, in part, that:

> A safety injection system with the capability for accomplishing adequate emergency core cooling is provided. This core cooling system and the core are designed to prevent fuel and clad damage that interferes with the emergency core cooling function and to keep the clad metal-water reaction within acceptable limits for all sizes of breaks in the reactor coolant piping up to the equivalent of a double-ended rupture of the largest pipe. The performance of such a safety injection system is evaluated conservatively in each area of uncertainty.

> The safety injection system employs a passive system of accumulators that do not require any external signals or source of power for their operation to cope with the short-term cooling requirements of a large reactor coolant pipe break. The high-head and the low-head safety injection systems, each capable of supplying the required emergency cooling, are also provided for small-break protection and to keep the core submerged after the accumulators have discharged following a large break. These systems are arranged so that the single failure of any active component does not interfere with meeting the short-term cooling requirements.
>
> The high-head and low-head safety injection systems are each capable of fulfilling long-term cooling requirements. The failure of any single active component or the development of excessive leakage during the long-term cooling period does not interfere with the ability to meet necessary long-term cooling objectives with one of the systems.
>
> The primary purpose of the safety injection system is to automatically deliver cooling water to the reactor core in the event of a [loss-of-coolant accident] LOCA. This limits the fuel clad temperature and thereby ensures that the core remains intact and in place, with its essential heat transfer geometry preserved.

UFSAR Section 9.9, "Service Water System," provides design bases information for the CPSW system and the MCR/ESGR AC Subsystem.

3.0 TECHNICAL EVALUATION

Description of Proposed Change

As described in the LAR dated May 18, 2017:

> The proposed revision extends the AOTs for only one operable SW flow path to the CPSW subsystem and to the MCR/ESGR AC subsystem from 24 to 72 hours.

TS 3.14.C currently states:

> C. The requirements of Specifications 3.14.A.5, 3.14.A.6, and 3.14.A.7 may be modified to allow unit operation with only one OPERABLE flow path to the charging pump service water subsystem, the recirculation spray subsystems, and to the main control and emergency switchgear room air conditioning condensers. If the affeAOTed systems are not restored to the requirements of Specifications 3.14.A.5, 3.14.A.6, and 3.14.A.7 within 24 hours, the reactor shall be placed in HOT SHUTDOWN. If the requirements of Specifications 3.14.A.5, 3.14.A. 6, and 3.14.A.7 are not met within an additional 48 hours, the reactor shall be placed in COLD SHUTDOWN.

The proposed change would revise: (1) TS 3.14.C to extend the CPSW subsystem flow path and the MCR/ESGR AC condensers flow path AOTs from 24 to 72 hours and to relocate the flow path AOT for the RS subsystems to a new specification, and (2) add new TS 3.14.D for the existing flow path AOT for the RS subsystems. The flow path AOT in the new TS 3.14.D for the RS subsystems is not being modified.

Revised TS 3.14.C and the new TS 3.14.D would state:

C. The requirements of Specifications 3.14.A.5 and 3.14.A.7 may be modified to allow unit operation with only one OPERABLE flow path to the charging pump service water subsystem and to the main control and emergency switchgear room air conditioning condensers. If the affected systems are not restored to the requirements of Specifications 3.14.A.5 and 3.14.A.7 within 72 hours, the reactor shall be placed in HOT SHUTDOWN within the next 6 hours. If the requirements of Specifications 3.14.A.5 and 3.14.A.7 are not satisfied as allowed by this Specification, the reactor shall be placed in COLD SHUTDOWN within the next 30 hours.

D. The requirements of Specification 3.14.A.6 may be modified to allow unit operation with only one OPERABLE flow path to the recirculation spray subsystems. If the affected system is not restored to the requirements of Specification 3.14.A.6 within 24 hours, the reactor shall be placed in HOT SHUTDOWN within the next 6 hours. If the requirements of Specification 3.14.A.6 are not met within an additional 48 hours, the reactor shall be placed in COLD SHUTDOWN within the next 30 hours.

Surry Amendment Nos. 279/279, issued on September 23, 2013, allowed the licensee to use a temporary jumper to supply SW flow to the component cooling heat exchangers (CCHX) required by TS 3.13. The purpose of the jumper was to supply SW to the CCHX while the normal supply piping was being inspected and repaired. The use of the temporary jumper was permitted two times only during each of the 2013 and 2015 Unit No. 1 refueling outages. The allowed use of the temporary SW jumper and associated TS notes have expired. Therefore, the proposed amendments delete the expired allowances, requirements, and TS Basis associated with the temporary SW jumper, which are:

1. Unit No. 1 License Condition U on page 9 of the Unit No. 1 OL, which allowed use of the temporary jumper
2. Unit No. 2 License Condition U on page 9 of the Unit No. 2 OL, which allowed use of the temporary jumper
3. Note B in TS Table 3.7-2 on page TS 3.7-20, which allowed two low intake canal level probes to be tripped when the temporary jumper was in use
4. The footnote associated with TS 3.14.A.2.b on page TS 3.14-1, which allowed the use of the temporary jumper to meet TS 3.14.A.2.b
5. The last paragraph in the TS 3.14 Basis on pages TS 3.14-4 and TS 3.14-4a, which explained the TS Basis for allowing the use of the temporary jumper

The only increase in AOTs described in the original request is the increase in time the plant would be allowed to operate with only one operable CPSW or MCR/ESGR AC flow path from 24 hours to 72 hours. The NRC staff issued a request for additional information (RAI) concerning language regarding the AOTs because the proposed changes appear to increase the number of hours the plant would be allowed to operate with only one operable CPSW or MCR/ESGR AC flow path from 24 hours to 78 hours, and increase the number of hours the plant would be allowed to operate with only one operable recirculation spray subsystems flow path from 24 hours to 30 hours. The licensee responded to the staff's RAI-5 in its letter dated February 10, 2017, by stating:

> There are a few specifications in the Surry TS where the specification requires the unit be placed in Hot Shutdown (after expiration of the allowed out of service time) or Cold Shutdown, but the specification does not specify the time frame to be in Hot or Cold Shutdown. To place the unit in Hot Shutdown within six hours after expiration of the allowed out of service time and in Cold Shutdown (if required) within the next 30 hours is consistent with the time frames in [the] Standard Technical Specifications.
>
> TS 3.14.C is one of the specifications in the Surry TS where the time frame to be in Hot Shutdown or Cold Shutdown is not specified. TS 3.14.C currently states "... If the affected systems are not restored to the requirements of Specifications 3.14.5, 3.14.6, and 3.14.7 within 24 hours, the reactor shall be placed in HOT SHUTDOWN. If the requirements of Specifications 3.14.5, 3.14.6, and 3.14.7 are not met within an additional 48 hours, the reactor shall be placed in COLD SHUTDOWN." In contrast, TS 3.13.B specifies the time frame to be in Hot and Cold Shutdown and states "... If the system is not restored within 24 hours to the requirements of Specification A-1, A-2, or A-3, an operating reactor shall be placed in HOT SHUTDOWN within the next 6 hours. If the repairs are not completed within an additional 48 hours, the affected reactor shall be placed in COLD SHUTDOWN within the following 30 hours."
>
> The new 3.14.C adds the 6 hour time frame to Hot Shutdown and the 30 hour time frame to Cold Shutdown into the specification with a total time frame of 108 hours. It should be noted that Specification 3.7.8 in NUREG-1431 (Westinghouse (Improved) Standard Specifications), which addresses the Service Water System (SWS), requires restoration of an inoperable SWS train within 72 hours and, if not met, be in Mode 3 (Hot Standby) within 6 hours and be in MODE 5 (Cold Shutdown) within 36 hours, also with a total time frame of 108 hours.

The NRC staff reviewed the licensee's comparison of current TS 3.14.C, which lacks explicit language allowing 6 hours to be in Hot Shutdown and 30 hours to be in Cold Shutdown to TS 3.13.B, which contains explicit timeframes to be in Hot and Cold Shutdown. The staff reviewed other Surry TSs with similar requirements, including TSs 3.4.B and 3.16.B.3. The staff noted that most Surry TSs contain explicit language allowing 6 hours to be in Hot Shutdown and 30 hours to be in Cold Shutdown when the requirements of a specification cannot be satisfied. The staff determined that while the proposed changes appear to increase the allowed operational time beyond the 72 hours as requested in the LAR, the explicit time allowed to transition to Hot Shutdown or Cold Shutdown would make the new TS 3.14.C and TS 3.14.D consistent with other Surry TSs. The staff confirmed the licensee's statement that the Standard Technical Specifications (STS) allow 108 hours to be in Cold Shutdown with an inoperable SW train, which is the same amount of time proposed for TS 3.14.C. The staff determined that the proposed changes to add language allowing 6 hours to be in Hot Shutdown and 30 hours to be in Cold Shutdown when the requirements of a specification cannot be satisfied are acceptable because they more explicitly specify the timeframe to be in Hot or Cold Shutdown.

The NRC staff concluded that while the proposed extended AOT is a relaxation to existing TS requirements, it is acceptable because it still affords adequate assurance of safety when judged against current regulatory standards, as discussed in father detail in Sections 3.1 through 3.7 below. Finally, the NRC staff concluded that the TSs, as amended by the proposed changes, will continue to meet the requirements of 10 CFR 50.36(c)(2).

3.1 Risk-informed Review

In implementing risk-informed discisionmaking, TS changes are expected to meet a set of key principles as described in Regulatory Guide 1.177, "An Approach for Risk-informed Decisionmaking: Technical Specifications." The NRC staff considered the following key principles in conducting its technical review:

1. The proposed change meets the current regulations unless it is explicitly related to a requested exemption.
2. The proposed change is consistent with the defense-in-depth philosophy.
3. The proposed change maintains sufficient safety margins.
4. When the proposed changes result in an increase in core damage frequency (CDF) or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.
5. The impact of the proposed change should be monitored using performance measurement strategies.

The first three principles pertain to traditional engineering considerations, and the last two principles involve risk considerations.

3.2 Key Principle 1: Compliance with Current Regulations

The licensee has submitted a satisfactory no significant hazards consideration in accordance with 10 CFR 50.91 and 10 CFR 50.92. The NRC staff has reviewed the requirements of 10 CFR 50.36(c) and has concluded that the LAR is in compliance with 10 CFR 50.36(c). Therefore, the staff concludes that the licensee proposed changes would meet existing regulations.

3.3 Key Principle 2: Defense-In-Depth Evaluation

Consistency with defense-in-depth philosophy is maintained if:

- A reasonable balance among prevention of core damage, prevention of containment failure, and consequence mitigation is preserved.

Prevention of core damage depends on the ability to continuously remove decay heat after an initiating event. The charging pumps and MCR/ESGR chillers would be needed to prevent core damage after a design-basis accident. When in the proposed AOT extension to 72 hours, the remaining SW flow path provides sufficient cooling flow to the high head charging pumps and the chillers for the MCR/ESGR AC system; therefore, safety function is maintained, although the redundant SW supply is unavailable. The proposed support system (SW) AOT of 72 hours, without redundancy, does not exceed the current supported systems (high head safety injection and MCR/ESGR AC) AOT of 72 hours and 7 days, respectively. Therefore, allowing an increase in the AOT of having only one OPERABLE SW flow path from 24 hours to 72 hours is reasonable with respect to preventing core damage.

During normal operation, the loss of SW flow path would not have an immediate safety impact because normal charging and letdown is a non-safety function. The MCR/EGSR can withstand loss of air-conditioning for several hours, giving operators enough time to react and restore at least one chiller. Based on an engineering GOTHIC calculation, the ESGR does not require chiller operation during the PRA mission time of 24 hours, as long as one of the ESGR AHUs (per unit) is operating, and there is not a initiating event that requires a safety injection.

Containment heat removal and pressure control after a design-basis accident is performed by the containment spray and recirculation spray subsystems. The containment spray system is not dependent on the SW system. The recirculation spray system heat exchangers are cooled by SW, but the LCO associated with the SW for the recirculation spray subsystems is unaffected by the proposed LAR. Therefore, this LAR affects neither the containment temperature/pressure nor potential leakage after a design-basis event. Thus, the increase in allowed AOT as proposed by this LAR has no apparent effect in the prevention of containment failure and consequence mitigation. Therefore, a reasonable balance among prevention of core damage, prevention of containment failure and consequence mitigation is preserved.

- Over-reliance on programmatic activities as compensatory measures associated with the change in the licensing basis is avoided.

The licensee has not proposed any compensatory measures as conditions for approval of the LAR. Therefore, over reliance on programmatic activities is not applicable.

- System redundancy, independence, and diversity are maintained commensurate with the expected frequency and consequences of challenges to the system, (e.g., there are no risk outliers).

<u>TS 3.14.A.5, Two service water flow paths to the (charging pump service water) subsystem</u>

TS 3.14.A.5 requires two SW flow paths to the CPSW subsystems be OPERABLE. The licensee's LAR proposed that if only one SW flow path is OPERABLE, then the allowed time for this condition (i.e., the AOT), be extended from 24 hours to 72 hours.

In an e-mail RAI dated December 12, 2016 (ADAMS Accession No. ML17117A320), the NRC staff asked the licensee to clarify what constitutes a SW flow path to the CPSW. The staff also asked whether any credited combination of two SW flow paths to a CPSW subsystem that follows TS 3.14.A.5 has any common components or piping that would challenge redundancy and independence.

By letter dated February 10, 2017, the licensee stated:

> The three 8 inch SW flow paths to the CPSW subsystem are the 1D, 2A, and 2C SW supply headers to valves 1 SW 499, 2 SW 477, and 2 SW 476. The three 8 inch headers supply SW to two 6 inch headers (CPSW subsystem) in Mechanical Equipment Room (MER) 3 and MER 4. The licensee further stated the CPSW subsystem is comprised of:

1. The 6 inch piping downstream of valves 1 SW 499, 2 SW 477, and 2 SW 476 supplying the CPSW pumps 1/2 SW P 10A (in MER 4) and 1/2 SW P 10B (in MER 3), which provide cooling to the Charging Pump intermediate seal coolers and to the Charging Pump lubricating oil coolers, and

2. The rotating strainers (1-VS-S-1A/1B), duplex strainers, and bypass lines.

The licensee also stated that if one of the 8-inch SW headers (from 1D, 2A, or 2C) is inoperable, no TS action is entered. If two of the 8-inch headers are inoperable, TS 3.14.C will be entered. If one of the two 6-inch headers to MER-3 or MER-4 is inoperable, TS 3.14.C will be entered. By each 6-inch header having different 8-inch SW supply headers (either 1D, 2A, or 2C), the section of the CPSW subsystem in MER-3 will receive SW supply from a different 8-inch header than the section of the CPSW subsystem in MER-4. The 6-inch SW headers are normally cross connected via valve 1-SW-263 in MER-3. This valve can isolate the two 6-inch SW headers and is closed during a fire or pipe failure.

The NRC staff concludes from the licensee's response and Figure 1 of the February 10, 2017, letter that when meeting the requirements of TS 3.14.A.5, the CPSW flow path to MER-3 supplying CPSW pumps 1A and 2A is independent of the CPSW flow path to MER-4 supplying CPSW pumps 1B and 2B. Each flow path to MER-3 and MER-4 will be supplied from separate 8-inch SW headers, either 1D, 2A, or 2C SW headers. If SW is lost to CPSW pumps 1A/2A in MER-4 or to CPSW pumps 1B/2B in MER-3, TS 3.14.C will be entered. Therefore, the NRC staff concludes that the two SW flow paths to the charging pump SW subsystem specified in TS 3.14.A.5 are sufficiently independent and redundant.

The CPSW subsystem (as the support system) supplies only the CPSW pumps 1/2-SW-P-10A (in MER-4) and 1/2-SW-P-10B (in MER-3), which provide cooling to the charging pump intermediate seal coolers and to the charging pump lubricating oil coolers. The charging pumps (the supported system) are the high head charging pumps required for TS 3.3, "Safety Injection System." If one of two safety injection subsystems (i.e., Charging Pump) is inoperable, TS 3.3.B.3 would allow an AOT of 72 hours before commencing a transition to HOT SHUTDOWN. If TS 3.14.C is entered because only one OPERABLE SW flow path to the CPSW subsystem is available, then redundancy and independence of two SW paths is lost. However, the supported system (Charging Pumps) that has an AOT of 72 hours, as specified in TS 3.3.B.3, is the only system supported by CPSW. Therefore, the AOT for the CPSW subsystem in TS 3.14.C can be extended from 24 hours to 72 hours to match the charging pump's AOT as specified in TS 3.3.B.3, without any significant increase in risk.

Based on the above, the NRC staff concludes that system redundancy and independence are maintained commensurate with the expected frequency, consequences of challenges to the system, and uncertainties for the CPSW subsystem.

<u>TS 3.14.A.7, Two service water flow paths to the main control room and emergency switchgear room air conditioning subsystems</u>

TS 3.14.A.7 requires two SW flow paths to the MCR/ESGR AC subsystems be OPERABLE. The licensee's LAR proposed that if only one SW flow path is OPERABLE, then the allowed time for this condition (i.e., the AOT), be extended from 24 hours to 72 hours.

Neither the TS Bases nor the UFSAR define what constitutes an SW flow path to an MCR/ESGR AC subsystem that meets the requirements of TS 3.14.A.7, nor do they explain what constitutes an MCR/ESGR AC subsystem. Therefore, in an e-mail RAI dated December 12, 2016 (ADAMS Accession No. ML17117A320), the NRC staff asked the licensee to:

a) Define the bounds of a MCR/ESGR air conditioning subsystem specified in TS 3.14.A.7 and describe the relationship between the MCR/ESGR air conditioning subsystems and the MCR/ESGR chillers referenced in TS 3.23.A.
b) Define what constitutes a service water flow path to a MCR/ESGR air conditioning subsystem which meet the requirements of TS 3.14.A.7.

In its letter dated February 10, 2017, the licensee stated that the MCR/ESGR AC subsystem is comprised of:

- the 6-inch and 4-inch piping downstream of valves 1-SW-499, 2-SW-477, 2-SW-476, 2-SW-532, and 2-SW-530,
- the rotating strainers (1-VS-S-1A/1B), duplex strainers, and bypass lines,
- the A, B, and C MCR/ESGR chiller pumps (1-VS-P-1A/1B/1C) that supply the condensers of the A, B, and C MCR/ESGR chillers (1-VS-E-4A/4B/4C), which are located in MER-3, and
- the D and E MCR/ESGR chiller pumps (1-VS-P-1D/1E) that supply the condensers of the D and E MCR/ESGR chillers (1-VS-E-4D/4E), which are located in MER-5.

In its letter dated May 18, 2017, the licensee stated that the three 8-inch SW flow paths to the MCR/ESGR AC subsystem are the 1D, 2A, and 2C SW supply headers to valves 1-SW-499, 2-SW-477, 2-SW-476, 2-W-532, and 2-SW-530. Two of the three 8-inch SW headers (i.e., 1D and 2A, 1D and 2C, or 2A and 2C) are normally in service. The licensee stated if one of the 8-inch SW headers is inoperable, no TS action statement is entered. If two of the 8-inch SW headers are inoperable, TS 3.14.C will be entered. If one of the 6-inch headers to MER-3 is inoperable, a TS 3.23.A.1.c, 7-day TS action statement is entered for the MCR/ESGR AC subsystem due to inoperable chiller considerations.

Based on the above, the NRC staff concludes from the licensee's response and Figure 1 of the letter dated February 10, 2017, letter that when meeting the requirements of TS 3.14.A.7 and TS 3.23.A.1, the SW flow to MER-5 supplying either the 4D or 4E chiller is independent of the SW flow supplying the chillers in MER-3. Also, each flow path to MER-5 and MER-3 will be supplied from different 8-inch SW headers, either 1D, 2A, or 2C SW headers. If SW flow is inoperable to either the chillers in MER-5 or to the chillers in MER-3, TS 3.14.C will be entered. Therefore, the NRC staff concludes the two SW flow paths to the chillers in MER-5 and MER-3 specified in TS 3.14. A.7 are sufficiently independent and redundant.

The licensee also states that if both of the 6-inch lines to MER-5 are inoperable, a TS 3.23.A.1.c 7-day TS action statement is entered for the MCR/ESGR AC subsystem due to inoperable chiller considerations. However, the staff notes if both 6-inch lines to MER-5 are inoperable, a single 8-inch SW header may be the only supply to MERs 3 and 4 and, thus, the only supply to the chillers in MER-3 and the CPSW pumps in MER-3 and 4. This lineup would require enough SW flow to the CPSW pumps and 2 chillers to maintain OPERABILITY of these components. If there was not enough SW flow to maintain the OPERABILITY of two chillers in MER-3, but only one chiller, TS 3.23.A.1.d would be required to be entered, allowing 1 hour to restore the second chiller before a dual unit shutdown is required.

The licensee stated in the LAR that with five chillers, there is flexibility in supplying SW to MER-3 and MER-5 to achieve the required number of OPERABLE chillers. From Figure 1 of the February 10, 2017, letter, the NRC staff notes that the three 8-inch SW headers (1D, 2A, and 2C) have the potential to supply the two 6-inch headers to MER-5, which can supply either of two chillers and the two 6-inch headers to MER-3, which can supply three chillers. To meet the requirements of TS 3.23 A.1, one chiller in MER-5 must be OPERABLE, and 2 chillers in MER-3 must be OPERABLE. If TS 3.14.C is entered because only one SW header is OPERABLE, resulting in the loss of one chiller, then extending the AOT of TS 3.14.C from 24 hours to 72 hours is reasonable because the support system (SW) AOT is still less than the supported system AOT of 7 days. However, if TS 3.14.C is entered because only one SW header is OPERABLE, resulting in the loss of chillers such that only one chiller remained operable, then extending the AOT of TS 3.14.C from 24 hours to 72 hours is still reasonable because TS 3.23.A.d for one operable chiller with an AOT of 1 hour would maintain the current level of safety.

The NRC staff concludes system redundancy and independence are maintained commensurate with the expected frequency, consequences of challenges to the system, and uncertainties for the MCR/ESGR AC subsystems.

- Defenses against potential common cause failures (CCF) are maintained and the potential for introduction of new CCF mechanisms is assessed.

Increasing the AOT of the SW system does not introduce any new CCF mechanisms.

When in the AOT, the one OPERABLE 8-inch flow path performs its safety function passively requiring no active initiation. The probability of a failure in this flow path is very low, and if a failure would occur, the third 8-inch header could be returned to service if available. If all SW was lost to the CPSW subsystem and MCR/ESGR subsystems, the operators would know immediately and could commence unit shutdowns. Therefore, defense against potential CCF is maintained.

- Independence of physical barriers is not degraded.

Although redundancy is forfeited with only one OPERABLE flow path to the CPSW subsystem and MCR/ESGR AC condensers during the increased AOT, the safety functions of these systems are still maintained. Therefore, the physical barriers such as fuel cladding, reactor coolant piping and components, and the containment are unaffected.

- Defenses against human errors are maintained.

In the licensee's February 10, 2017, response to NRC RAI-2, it stated the following:

> Consistent with UFSAR Section 9.9.2, if one of the 8-inch SW headers is inoperable, no TS action statement is entered. If two of the 8-inch SW headers are inoperable, TS 3.14.C will be entered. If one of the 6-inch headers to MER 3 is inoperable, a TS 3.23.A.1.c 7-day TS action statement is entered for the MCR/ESGR AC subsystem due to inoperable chiller considerations. If one of the 6-inch lines to MER 5 is inoperable, no TS action statement is entered. If both of the 6-inch lines to MER 5 are inoperable, a TS 3.23.A.1.c 7-day TS action statement is entered for the MCR/ESGR AC subsystem due to inoperable chiller considerations. Significant defense in depth for the chillers and the flow paths to supply SW to the MER 3 and MER 5 chillers is available; however, manual action would be required to restore chiller operability.

Therefore, if the only one 8-inch SW header was the available source to the chillers in MER-3, some operator action may be required to ensure at least two chillers were OPERABLE. Otherwise, a 1-hour AOT would take effect per TS 3.23 A.1.d. In any case, rapid operator action is not required, and defense against human errors is maintained.

- The intent of plant design is maintained.

The intent of plant design provides sufficient DID to meet the regulatory requirements specified in Section 2.4 of this safety evaluation.

The plant design consists of three 8-inch sources of SW to the CPSW subsystem and MCR/ESGR subsystems for both units. The CPSW subsystem has 'A' CPSW pumps for both units in MER-4 and 'B' CPSW pumps for both units in MER-3, separated by seismic, missile protected, 3-hour fire-rated walls.

The plant design consists of five MCR/ESGR chillers. Three chillers are located in MER-3, and two chillers are located in MER-5. This arrangement prevents full loss of cooling in the event of a fire in either MER-3 or MER-5. Three of the five chillers are powered from either of two buses, enabling maximum system flexibility in aligning the chillers as required.

This LAR does not affect plant design but changes the operational requirements, as declared in the TSs, from a completion time (CT) of 24 hours to 72 hours; therefore, the intent of plant design is maintained.

3.4 <u>Key Principle 3: Safety Margins</u>

The proposed LAR changes the AOT from 24 hours to 72 hours for allowing only one OPERABLE SW flow path to the charging pump service subsystem and MCR/ESGR air conditioning condensers. Although the AOT for the absence of redundancy in the SW supply is increased, the SW safety function is maintained. Because the safety function is maintained, the safety analysis acceptance criteria in the UFSAR is not affected. The safety analysis relies upon one train of SW and is not dependent on redundancy of the SW supply.

The proposed LAR is not a design or system change. Therefore, the change does not conflict with design or construction Codes and Standards.

NUREG-1431, Revision 4, "Standard Technical Specifications Westinghouse Plants," contains the improved STS for Westinghouse plants. The changes reflected in Revision 4 result from the experience gained from plant operation using the improved STS and extensive public technical meetings and discussions among the NRC staff and various nuclear power plant licensees and the Nuclear Steam Supply System Owners Groups.

The STS provides NRC approved AOTs or CT for TS systems. The CT or AOT in NUREG-1431 for one inoperable SW train (TS 3.7.8) is 72 hours. Although Surry has not adopted the STS, NUREG-1431 provides reasonable technical guidance for NRC staff when evaluating LARs. Surry's request for extension of the SW AOT is in accordance with the STS. Therefore, the NRC staff finds that the requested change is in agreement with NUREG-1431.

The proposed change does not affect the safety analysis or codes and standards. The NRC staff concludes that sufficient safety margins are maintained.

3.5 Key Principle 4: Change in Risk Consistent with the Commission's Safety Goal Policy Statement

The evaluation presented below addresses the NRC staff's philosophy of risk-informed decisionmaking for proposed changes resulting in a change in risk. The increase should be small and consistent with the intent of the Commission's Safety Goal Policy Statement. The licensee stated in its LAR dated May 18, 2017, that the Surry PRA was utilized to evaluate the impact on Core Damage Frequency (CDF) and Large, Early Release Frequency (LERF) to support requesting an extension to the AOT to allow only one operable CPSW or MCR/ESGR AC flow path from 24 hours to 72 hours. The MER headers supply SW to safety-related loads at Surry, Unit Nos. 1 and 2, and, therefore, is explicitly modeled in the average maintenance model for Surry.

PRA Technical Adequacy

RG 1.174, Revision 2, states, in part:

> ...The scope, level of detail, and technical adequacy of the PRA are to be commensurate with the application for which it is intended and the role the PRA results play in the integrated decision process.

The acceptability of the PRA must be compatible with the safety implications of the TS change being requested and the role that the PRA plays in justifying that change. That is, the more the potential change in risk or the greater the uncertainty in that risk from the requested TS change, or both, the more rigor that must go into ensuring the acceptability of the PRA. This applies to Tier 1, and it also applies to Tiers 2 and 3 to the extent that a PRA model is used.

RG 1.200, Revision 2, describes one acceptable approach for determining whether the technical adequacy of the PRA, in total or the parts that are used to support an application, is sufficient to provide confidence in the results such that the PRA can be used in regulatory decisionmaking for light water reactors. RG 1.200, Revision 2, clarifies the American Society of Mechanical Engineers (ASME)/American Nuclear Society (ASME/ANS) PRA standard to be ASME/ANS-RA-Sa 2009, "Addenda to ASME/ANS RA-S-2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications."

To determine the acceptability of the PRA used in support of the proposed extension of the AOT to allow only one operable CPSW or MCR/ESGR AC flow path from 24 hours to 72 hours, the staff also evaluated the PRA information provided by the licensee in its July 14, 2016, submittal (ADAMS Accession No. ML16202A068). The PRA model used to support this LAR was also used to support the July 14, 2016, submittal to amend the AOT for the essential SW pumps (ESW). The NRC staff also reviewed information provided in the supplemental RAI relating to the July 14, 2016 submittal responses in letters dated March 1, 2017, and March 10, 2017. Details pertaining to the peer reviews, the peer review findings, and disposition are provided in the May 18, 2016, LAR and the responses to the NRC staff RAIs generated for the ESW pump AOT extension to support the assessment of the PRA acceptability. The NRC staff used the docketed information related to the technical adequacy of the PRA from the ESW Pump AOT submittals to support the SW flow path AOT extension consistent with the NRC staff license amendment review procedure (LIC-109).

Internal Events PRA (Includes Internal Flooding)

In its letter dated May 18, 2016, the licensee stated that its PRA underwent a 1998 Nuclear Energy Institute PRA peer review, a 2009 Surry PRA self-assessment, a 2010 PRA focused-scope peer review, and a 2012 PRA focused-scope peer review. In response to APLA-RAI-4 and RAI-5 by letter dated March 1, 2017, the licensee stated that the 1998 review was completed using the Westinghouse Owners Group Peer Review Process (i.e., prior to the issuance of RG 1.200) and that the 2009 self-assessment was performed by reviewing the Surry internal events PRA model files and documentation against the requirements in the PRA standard RA Sb 2005 and RG 1.200, Revision 1. RG 1.200, Revision 2, discusses the NRC expectations that if the results of a self-assessment are used to demonstrate the technical adequacy of a PRA for an application, differences between the current version of the standard (i.e., RA-Sa-2009) as endorsed in RG 1.200 Revision 2, Appendix A, and the earlier version, be identified and addressed.

In the table for response to RAI-5b dated March 1, 2017, the licensee identified surveillance requirements that differed between RA-Sb-2005 and RA-Sb-2009 and reevaluated all of the original findings and observations against the RA-Sb-2009 version of the PRA standard. The 2010 and 2012 focused-scope peer reviews were performed against the requirements in the PRA standard RA-Sa-2009 and RG 1.200, Revision 2. The NRC staff finds that the licensee has reviewed its PRA consistent with RG 1.200 because the 2010 and 2012 peer reviews used the current PRA standard and the earlier peer review results were updated to be consistent with the current PRA standard.

The results of each PRA peer review are summarized as facts and observations (F&Os). The F&Os summarize issues or weaknesses in the PRA identified by the peer review teams. Most F&Os were reported as resolved and closed but some remain unresolved. The F&O discussion in the LAR indicated that the unresolved F&Os were evaluated for their potential impact on the reported results. The licensee reported that a sensitivity study on the human error probability values for the SW flow path AOT extension "demonstrated that this issue does not impact the results of this analysis." The licensee also stated that resolving the CCF F&O "would not impact the delta CDF/LERF results of this application" because common cause only affects redundant components and for the configuration supporting this AOT only one independent failure is then required. The loss-of-offsite power frequency issue is related to a weakness in support system initiating event failures and the licensee reported that a sensitivity study "demonstrated that the support system initiators as modeled, did not impact the results."

In its letter dated March 1, 2017, the licensee provided additional information encompassing the findings and dispositions generated from the Surry PRA peer reviews performed (APLA-RAI-7, ADAMS Accession No. ML17066A187). In response to RAIs (APLA-RAI-4a and APLA-RAI-5), the licensee provided information pertaining to the version of the standard against which the peer reviews and independent assessment were performed and additional details to support the scope of the peer reviews (i.e., Technical Elements, and High Level Requirements). The NRC staff concludes that the scope of the PRA peer reviews, disposition of the F&Os and responses to the RAIs, as supplemented in letters dated March 1, 2017, and March 10, 2017, provide sufficient confidence to conclude that the PRA is acceptable to support the risk analysis for the permanent extension of the AOTs for TS 3.14.A.5 and TS 3.14.A.7. The NRC staff further concludes that the licensee has reviewed its PRA consistent with the guidance in RG 1.200, Revision 2.

The NRC staff concludes that the PRA is technically adequate to support the request to the extend the SW flow path AOT because the licensee has reviewed its PRA consistent with RG 1.200 and either resolved the peer review F&Os or determined that resolving the F&O would not impact the results used in the LAR.

Fire PRA

The licensee performed a review of the Individual Plant Examination for External Events (IPEEE) and the Fire Contingency Action (FCA) procedures to evaluate the impact for the extension of the AOT with only one SW flow path operable to the CPSW or MCR/ESGR. The NRC reviewed the Surry IPEEE and reported the results in its March 7, 2000, "Review of Surry Power Station, Unit Nos. 1 and 2, Individual Plant Examination of External Events (IPEEE) Submittal" (ADAMS Accession No. ML003692174, non-publically available). The NRC concluded that, "[o]n the basis of the IPEEE review, the staff concludes that the licensee's IPEEE process is capable of identifying the most likely severe accidents and severe accident vulnerabilities."

Section 3.1 of RG 1.200, Revision 2, states that missing hazard groups may be evaluated using bounding arguments to cover the risk contributions not addressed by the model. The licensee reviewed the four areas that did not screen out as insignificant contributors in the fire analysis in the IPEEE. These four areas included the Cable Vault Tunnel, the Emergency Switchgear Room (ESGR), the MCR, and the normal switchgear room. Mechanical Equipment Rooms 3 and 4 have also been considered in this review due to the potential impact to multiple CPSW components and the SW supply to the ESGR and MCR chillers. Additional review of the FCA procedures for the respective fire areas was performed by the licensee to assess the safe shutdown practices and the impact of the AOT change on the fire risk.

The licensee provided an extensive qualitative evaluation of the fire-induced scenarios in each of these four areas. The review identified the expected equipment damage and the subsequent strategies to achieve a safe shutdown state. The licensee concluded that the analyses "demonstrate the impact of the SW Header AOT change on the overall fire risk" is acceptable and bounded by the internal events analysis."

The NRC staff determined that the qualitative assessment of the significant fire areas was comprehensive and performed in sufficient detail to provide confidence that the licensee's use of IPEEE insights demonstrate that the impact of the SW header AOT change on the overall fire risk is acceptable and bounded by the internal events analysis. Furthermore, the NRC staff concludes that the bounding argument is acceptable because the licensee used a previously reviewed PRA analysis that was found sufficient to identify the most likely fire-related accidents and performed a detailed review of potential fires on risk associated with the extended AOT.

Seismic and Other External Risk Evaluation

The IPEEE-Seismic program, integrated with the Unresolved Safety Issue A-46 effort, resulted in several plant improvements and design modifications. The seismic PRA (SPRA) quantification in the IPEEE concluded that no severe accident vulnerabilities exist at Surry from a potential seismic event. The NRC reviewed the Surry IPEEE and reported the results in its March 7, 2000, "Review of Surry Power Station, Unit Nos. 1 and 2, Individual Plant Examination of External Events (IPEEE) Submittal." The NRC staff determined that, "[o]n the basis of the IPEEE review, the staff concludes that the licensee's IPEEE process is capable of identifying the most likely severe accidents and severe accident vulnerabilities." The IPEEE reported a seismic CDF of 8E-06/year.

The change in risk from the extended AOT is only affected if the seismic event occurs while the system is in the extended AOT, which the licensee estimates to be 15 days per year, or 0.04 year. The licensee clarified that in about 75 percent of the seismic PRA sequences, the CPSW function and the SW supply to the ESGR and MCR chillers are either consequently failed by the seismic event or are not credited as support systems. Therefore, the current seismic CDF that might credit the SW supply to the ESGR and MCR chillers is equal to or less than 8E-08/year, and the LERF would generally be smaller. These results indicate that the seismic risk associated with the proposed change is very small.

The licensee reported in the LAR that the seismic PRA was reviewed to support this LAR and "concluded that the proposed change has a negligible impact on seismic risk and is screened from further evaluation." The NRC staff concludes that the seismic evaluation is acceptable because the licensee used a screening PRA analysis previously found acceptable by the NRC staff to evaluate scenarios for which the AOT extension might affect risk and concluded that the proposed change has a negligible impact.

The licensee also considered other external hazards consistent with NUREG/CR-2300 and NUREG/CR-4389. In its letter dated May 18, 2016, the licensee stated that seven events were identified as needing more detailed evaluation following an initial screening and explained,

> ...The non-seismic external events of interest, except for aircraft impacts, pipeline accidents and external flooding, were screened out based on the UFSAR information and the results reached by NUREG/CR-4550. The bounding analysis performed for the effects of aircraft impacts and pipeline accidents were based on the methods used by NUREG/CR-4550. The results of these two analyses indicate that the frequency of the events occurring is small. The actual risk from these hazards to the safe operation of the plant would be less than the screening value, because most safety-related equipment is inside Class I structures and is designed to withstand the loads imposed by the external event. The bounding analysis for external flooding considered the worst case occurrence of the 1 hour in 1 square mile probable maximum precipitation (PMP). The consequences of this occurrence were mitigated by implementation of a procedural revision and modification of turbine building roof parapets to reduce roof top accumulation during intense precipitation. Therefore, it can be concluded that non-seismic external events do not pose a significant risk to the safe operation of Surry Power Station.

Section 3.1 of RG 1.200, Revision 2, states that missing hazard groups may be evaluated using bounding arguments to cover the risk contributions not addressed by the model. In the LAR, the licensee summarized how it performed the screening analysis referencing acceptable NRC methods. The NRC staff concludes that the licensee's use of NRC reviewed methods and models to evaluate the risk impact of the proposed change is sufficient to conclude that the evaluation is adequate to support the proposed change.

Tier 1: PRA Capability and Insights

The licensee's evaluation addresses the NRC staff's three-tiered approach as described in RG 1.177, Revision 1. The analysis evaluated the risk for the MER SW header out of service for durations in excess of the current TS 3.14.A.5 and TS 3.14.A.7 limits.

The first tier evaluates the impact of the proposed change on plant operational risk. The Tier 1 review involves two aspects: (1) evaluation of the technical adequacy of the Surry PRA model and its application to the proposed change, and (2) evaluation of the PRA results and insights based on the licensee's proposed change.

The MER headers supply SW to safety-related loads at Surry, Unit Nos. 1 and 2 and, therefore, are modeled explicitly in the average maintenance model for Surry. The licensee stated that a ΔCDF and ΔLERF for the proposed change to AOTs for MER SW flow paths to the CPSW subsystem and to the MCR/ESGR AC subsystem may be directly calculated from the model by comparing CDF results with increased unavailability of the MER headers. The licensee stated that the most probable means of rendering the sole SW flow path unavailable is the obstruction of CW intake/traveling water screens at the high level intake structure. The licensee assumed that obstruction of the screens will occur if power to the in-service strainer is lost. The licensee's analysis evaluated the incremental conditional core damage probability (ICCDP) and the incremental conditional large early release probability (ICLERP) for the MER SW header out of service for the new requested 72-hour AOT interval.

72-hour TS Entry	U1 ICCDP	U2 ICCDP	U1 ICLERP	U2 ICLERP
A SW Header	1.84E-08	2.09E-08	6.03E-09	8.46E-09
B SW Header	1.66E-08	2.50E-09	1.29E-08	1.12E-09

The licensee's assessment then assumed an annual accumulation of 15 days of unavailability (e.g., five times the 72-hour AOT) for the configuration as a result of the TS change. Increasing the reported ICCDPs and ICLERPs in the above table by a factor of five still results in a risk increase for CDF and LERF less than 1E-06/year and 1E-07/year respectively for a very small risk increase that remains acceptable per RG 1.174, Revision 2. The NRC staff concludes that failure of the strainers by becoming obstructed was conservative, and the assumption of 15 days was also conservative, based upon the extension time requested from 24 hours to 72 hours.

The NRC staff concludes that the proposed risk increase is very small and acceptable; therefore, additional evaluation of the total risk is unnecessary because of the very low risk estimates.

Tier 2: Avoidance of Risk Significant Plant Configurations

The licensee performed a detailed review of the PRA importance measures (i.e., risk achievement worth and Fussell Vesely). The licensee stated that the detailed review did not identify any risk significant maintenance configurations when one MER SW header is considered unavailable. The licensee concluded that the evaluation did not identify any configurations that would require Tier 2 enhancements in accordance with RG 1.177, Revision 1 (i.e., procedure revisions and compensatory actions).

The NRC staff concludes that this evaluation has appropriately assessed the contribution to plant risk, while the equipment covered by the proposed AOT change is out of service, and the assessment to identify that no risk-significant configurations exist is consistent with the risk results that support the conclusion for very limited risk impact for the requested change.

Tier 3: Risk-informed Plant Configuration Control and Management

The licensee stated that the 10 CFR 50.65(a)(4) program at Surry performs PRA analyses of planned maintenance configurations in advance. The licensee further stated that configurations that approach or exceed the NUMARC 93-01 risk limits are identified and either avoided or addressed by risk management actions. In addition, the configuration analysis and risk management processes are proceduralized in accordance with the requirements of 10 CFR 50.64(a)(4). As described in key principle 5, the staff concludes that the licensee's program for compliance with 10 CFR 50.65(a)(4) ensures that the risk impact for out-of-service equipment is appropriately assessed and managed and is consistent with the guidance in RG 1.177, Revision 1.

3.6 Key Principle 5: Monitor the Impact of the Proposed Change

RG 1.174, Revision 2, and RG 1.177, Revision 1, establish the need for an implementation and monitoring program to ensure that extensions to TS AOT Completeion Times do not degrade operational safety over time and that no adverse degradation occurs due to unanticipated or common cause mechanisms. An implementation and monitoring program is intended to ensure that the impact of the proposed TS change continues to reflect the reliability and availability of structures, systems, and components (SSCs) impacted by the change. RG 1.174, Revision 2, states that monitoring performed in conformance with the Maintenance Rule, 10 CFR 50.65, can be used when the monitoring performed is sufficient for the SSCs affected by the risk-informed application.

The licensee stated that Surry's 10 CFR 50.65(a)(4) compliance program requires analysis and management of configuration risks in advance of planned maintenance configurations. The licensee also stated that the MER SW system is included in the 10 CFR 50.65(a)(4) scope and its removal from service will be monitored, analyzed, and managed. Key principle 5 is satisfied because the monitoring of the affected systems is achieved using the Maintenance Rule program.

The NRC staff concludes that the risk impact of the licensee's request to allow a single SW flow path to be available to the CPSW subsystem and to the MCR/ESGR AC subsystem for up to 72 hours, as estimated by the ICCDP, ICLERP, ΔCDF and ΔLERF is consistent with the acceptance guidelines specified in RG 1.177, Revision 1 and the staff guidance outlined in Sections 19.1 and 16.1 of NUREG-0800. The licensee's methodology for assessing the risk impact is accomplished using PRA models of sufficient scope and technical adequacy based on a review of the model consistent with the guidance of RG 1.200, Revision 2. For external hazards which do not have PRA models, the licensee used bounding analyses. The NRC staff finds that the licensee has followed the three-tiered approach and performance monitoring programs outlined in RG 1.177, Revision1.

3.7 Conclusion

The NRC staff has evaluated the licensee's proposed AOT extension from 24 hours to 72 hours for TS 3.14.C for the SW flow path requirements of TS 3.14.A.5 and TS 3.14.A.7. Evaluation of Key Principles 1 through 3 was performed in accordance with the traditional engineering considerations of RG 1.177. The NRC staff concludes that the licensee's proposed changes to TS 3.14.C meet current regulations, are consistent with the DID philosophy, and maintain sufficient safety margins. Therefore, the NRC staff concludes that the licensee's LAR meets the regulatory requirements and guidelines specified in paragraph 2.4, Regulatory Requirements, and is, therefore, acceptable.

RG 1.174, Revision 2, states that the scope, level of detail, and technical adequacy of the PRA are to be commensurate with the application for which it is intended and the role the PRA results play in the integrated decision process. The licensee provided an evaluation of the proposed TS change against the three-tiered approach in its submittal. The increase in risk associated with the proposed change is consistent with RG 1.174, Revision 2, and RG 1.177, Revision 1, acceptance guidelines for a permanent TS CT change. This evaluation demonstrates that nuclear DID will not be significantly impacted by allowing a single SW flow path to be available to the CPSW subsystem and to the MCR/ESGR AC subsystem for up to 72 hours.

The NRC staff also concludes that the deletion of the OL conditions, temporary TS requirements, and discussion associated with temporary SW jumper to the CCHXs to be satisfactory, since those requirements were temporary and have expired.

Based on the above, the NRC concludes that reasonable assurance of health and safety of the public and the environment and that the proposed changes will continue to meet the requirements of 10 CFR 50.36.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the proposed amendments. The State official confirmed on April 12, 2017, 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 and change surveillance requirements. 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, and there has been no public comment on such finding (81 FR 73443). 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 31, 2017

SUBJECT: SURRY POWER STATION, UNIT NOS. 1 AND 2 – ISSUANCE OF AMENDMENTS REGARDING EXTENSION OF TECHNICAL SPECIFICATION 3.14, "SERVICE WATER FLOW PATH ALLOWED OUTAGE TIMES AND DELETION OF EXPIRED TEMPORARY SERVICE WATER JUMPER REQUIREMENTS" (CAC NOS. MF7746 AND MF7747) DATED MAY 31, 2017

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