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

April 22, 2024

Eduard Casulli
Site Vice President
Susquehanna Nuclear, LLC
769 Salem Boulevard
NUCSB3
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 287 AND 271 RE: ADOPTION OF TSTF-568, REVISION 2 AND ASSOCIATED TECHNICAL SPECIFICATION CHANGES (EPID L-2023-LLA-0167)

Dear Eduard Casulli:

The U.S. Nuclear Regulatory Commission (NRC or the Commission) has issued the enclosed Amendment Nos. 287 and 271 to Renewed Facility Operating License Nos. NPF-14 and NPF-22, respectively, for the Susquehanna Steam Electric Station, Units 1 and 2. The amendments consist of changes to the technical specifications (TS) in response to Susquehanna Nuclear, LLC's application dated November 29, 2023.

The amendments revise the TS to adopt the Technical Specifications Task Force (TSTF) traveler, TSTF-568, Revision 2, "Revise Applicability of BWR/4 TS 3.6.2.5 and TS 3.6.3.2," for applicability and actions of TS 3.6.3.3, "Primary Containment Oxygen Concentration." The changes simplify and clarify the applicability statements, remove the undefined term "scheduled reactor shutdown," and provide adequate terminal actions.

A copy of the related safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's monthly *Federal Register* Notice.

Sincerely,

/RA/

Audrey Klett, Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures:
1. Amendment No. 287 to
   License No. NPF-14
2. Amendment No. 271 to
   License No. NPF-22
3. Safety Evaluation

cc: Listserv

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

SUSQUEHANNA NUCLEAR, LLC

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 287
Renewed License No. NPF-14

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

   A. The application for amendment by Susquehanna Nuclear, LLC, dated November 29, 2023, 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 that (i) the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) 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 renewed facility operating license and technical specifications, as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-14 is hereby amended to read, in part, as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 287, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

HIPOLITO GONZALEZ

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Date: 2024.04.22 13:38:39 -04'00'

Hipólito González, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and
Technical Specifications

Date of Issuance: April 22, 2024

ATTACHMENT TO LICENSE AMENDMENT NO. 287

RENEWED FACILITY OPERATING LICENSE NO. NPF-14

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

DOCKET NO. 50-387

Replace the following page of the renewed facility operating license with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove	Insert
3	3

Replace the following page of the appendix A technical specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove	Insert
3.6-34	3.6-34

(3) Susquehanna Nuclear, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, posses, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed neutron sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Susquehanna Nuclear, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, posses, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Susquehanna Nuclear, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission nor or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Susquehanna Nuclear, LLC is authorized to operate the facility at reactor core power levels not in excess of 3952 megawatts thermal in accordance with the conditions specified herein. The preoperational tests, startup tests and other items identified in License Conditions 2.C.(36), 2.C.(37), 2.C.(38), and 2.C.(39) to this license shall be completed as specified.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 287, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

For Surveillance Requirements (SRs) that are new in Amendment 178 to Facility Operating License No. NPF-14, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 178. For SRs that existed prior to Amendment 178, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 178.

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Primary Containment Oxygen Concentration

LCO 3.6.3.3 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 ---------- NOTE ---------- LCO 3.0.4.c is applicable. ---------- Restore oxygen concentration to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.3.1	Verify primary containment oxygen concentration is within limits.	In accordance with the Surveillance Frequency Control Program

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

SUSQUEHANNA NUCLEAR, LLC

DOCKET NO. 50-388

SUSQUEHANNA STEAM EECTRIC STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 271
Renewed License No. NPF-22

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

A. The application for amendment by Susquehanna Nuclear, LLC, dated November 29, 2023, 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 that (i) the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) 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 renewed facility operating license and technical specifications, as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-22 is hereby amended to read, in part, as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 271, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

HIPOLITO GONZALEZ

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Date: 2024.04.22 13:39:06 -04'00'

Hipólito González, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and
Technical Specifications

Date of Issuance: April 22, 2024

ATTACHMENT TO LICENSE AMENDMENT NO. 271

RENEWED FACILITY OPERATING LICENSE NO. NPF-22

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

DOCKET NO. 50-388

Replace the following page of the renewed facility operating license with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove	Insert
3	3

Replace the following page of the appendix A technical specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove	Insert
3.6-34	3.6-34

(3) Susquehanna Nuclear, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, posses, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed neutron sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Susquehanna Nuclear, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, posses, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Susquehanna Nuclear, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission nor or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Susquehanna Nuclear, LLC is authorized to operate the facility at reactor core power levels not in excess of 3952 megawatts thermal in accordance with the conditions specified herein. The preoperational tests, startup tests and other items identified in License Conditions 2.C.(20), 2.C.(21), 2.C.(22), and 2.C.(23) to this license shall be completed as specified.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 271, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. Susquehanna Nuclear, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

For Surveillance Requirements (SRs) that are new in Amendment 151 to Facility Operating License No. NPF-22, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 151. For SRs that existed prior to Amendment 151, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 151.

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Primary Containment Oxygen Concentration

LCO 3.6.3.3 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 ---------- NOTE ---------- LCO 3.0.4.c is applicable. ---------- Restore oxygen concentration to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.3.1	Verify primary containment oxygen concentration is within limits.	In accordance with the Surveillance Frequency Control Program

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION FOR

AMENDMENT NO. 287 TO RENEWED FACILITY OPERATING LICENSE NO. NPF 14

AMENDMENT NO. 271 TO RENEWED FACILITY OPERATING LICENSE NO. NPF 22

SUSQUEHANNA NUCLEAR, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 50-388

1.0 INTRODUCTION

By application dated November 29, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23333A214), Susquehanna Nuclear, LLC (the licensee) submitted a license amendment request for Susquehanna Steam Electric Station (Susquehanna), Units 1 and 2.

The proposed changes would revise Technical Specification (TS) 3.6.3.3, “Primary Containment Oxygen Concentration.” The proposed changes would simplify and clarify the applicability statements, which, if misapplied, could conflict with the corresponding required actions. The proposed changes would also remove the undefined term “scheduled reactor shutdown” and provide adequate terminal actions.

The proposed amendments are based on Technical Specifications Task Force (TSTF) Traveler TSTF-568, Revision 2, “Revise Applicability of BWR [Boiling Water Reactor]/4 TS 3.6.2.5 and TS 3.6.3.2” (ML19141A122). The U.S. Nuclear Regulatory Commission (NRC, or the Commission) approved TSTF-568, Revision 2, by letter dated December 17, 2019 (ML19325C444). The NRC staff’s safety evaluation (SE) of the traveler was enclosed with the NRC staff’s approval letter.

The licensee has proposed variations from the TS changes described in TSTF-568, Revision 2. The variations are described in section 2.2.2 of this SE and evaluated in section 3.1.6.

2.0 REGULATORY EVALUATION

2.1 Description of Structures, Systems, Components, and Technical Specification Sections

2.1.1 Current Containment Oxygen Concentration Requirements

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.44, "Combustible gas control for nuclear power reactors," states that for a plant with an inerted containment atmosphere, the oxygen concentration in the primary containment is required to be maintained below 4 percent by volume during normal plant operation. This requirement ensures that an accident that produces hydrogen does not result in a combustible mixture inside the primary containment. Current TS 3.6.3.3 requires primary containment oxygen concentration to be less than 4 percent by volume when in Mode 1 during the period from 24 hours after the thermal power exceeds 15 percent rated thermal power (RTP) following startup and to 24 hours prior to reducing the thermal power less than 15 percent RTP during the next scheduled reactor shutdown. TSTF-568, Revision 2, explains that the 24-hour allowance above 15 percent RTP is provided in the primary containment oxygen concentration specification to delay inerting the primary containment in a plant startup and to accelerate de-inerting for a plant shutdown. This allowance is provided so that plant personnel can safely enter the primary containment without breathing apparatus to perform the needed inspections and maintenance adjustments.

The containment consists of a drywell (in the shape of a truncated cone), a suppression chamber directly below the drywell (in the shape of a right circular cylinder), and a network of vertical vents extending downward from the drywell to the suppression chamber. The containment atmosphere is inerted with nitrogen gas during normal operation to prevent a combustible mixture of hydrogen and oxygen from forming during accident conditions. Following a loss-of-coolant accident (LOCA), long-term control of post-LOCA hydrogen gas concentration is accomplished by adding additional nitrogen gas and then venting the primary containment through the standby gas treatment system.

2.1.2 Pressure Suppression Following a Loss-of-Coolant Accident

The drywell is immediately pressurized when a postulated line break occurs within the primary containment. As drywell pressure increases, drywell atmosphere (primarily nitrogen gas) and steam are blown down through the vents into the suppression pool via the downcomers. The steam condenses in the suppression pool, which suppresses the peak pressure in the drywell. Non-condensable gases discharged into the suppression pool collect in the free air volume of the suppression chamber, increasing the suppression chamber pressure. As steam is condensed in the suppression pool and on the structures in the drywell, the pressure decreases until the suppression chamber pressure exceeds the drywell pressure and the suppression chamber-drywell vacuum breakers open and vent non-condensable gases back into the drywell.

2.1.3 TS 3.6.3.3, "Primary Containment Oxygen Concentration"

The primary containment oxygen concentration is maintained to ensure that a LOCA—a postulated event that produces hydrogen—does not result in a combustible mixture inside primary containment. The TS requires that the primary containment oxygen concentration be maintained below 4 volume percent. Below this concentration, the primary containment is inerted and no combustion can occur.

2.2 Description of Proposed Technical Specification Changes

2.2.1 Proposed Changes to TS 3.6.3.3, “Primary Containment Oxygen Concentration”

The applicability of TS 3.6.3.3 would be revised as shown below:

Current TS Applicability	Proposed TS Applicability
MODE 1 during the time period: a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to b. 24 hours prior to reducing THERMAL POWER to ≤ 15% RTP prior to the next scheduled reactor shutdown.	MODES 1 and 2.

Required Actions A.1 and B.1 and their associated completion times would be revised as shown below (additions are shown in underlined text and deletions are shown as lined out text):

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 *---------- NOTE ---------- LCO 3.0.4.c is applicable. ----------* Restore oxygen concentration to within limit.	*72* ~~24~~ hours
B. Required Action and associated Completion Time not met.	B.1 *Be in MODE 3*~~Reduce THERMAL POWER to ≤ 15% RTP~~.	*12* ~~8~~ hours

The NRC staff understands the overall purpose of the proposed changes is to simplify the applicability statement by adding a new note and revising the completion time. This change provides operational flexibility but more closely follows established TS conventions and requires that the plant be in Mode 3 if oxygen concentration cannot be restored to within limits.

2.2.2 Variations

The proposed change to TS 3.6.2.5, “Drywell-to-Suppression Chamber Differential Pressure,” in TSTF-568 is not applicable to Susquehanna and, therefore, was not included in the license amendment request.

The Susquehanna TS uses different numbering than the standard TS (STS) on which TSTF-568 was based. Specifically, STS 3.6.3.2, “Primary Containment Oxygen Concentration,” is

Susquehanna TS 3.6.3.3, “Primary Containment Oxygen Concentration.” This difference does not affect the applicability of TSTF-568 to the Susquehanna TS.

2.3 Applicable Regulatory Requirements and Guidance

Section 50.90, “Application for amendment of license, construction permit, or early site permit,” of 10 CFR requires that whenever a licensee desires to amend the license, application for an amendment must be filed with the Commission fully describing the changes desired and following, as far as applicable, the form prescribed for original applications.

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 for licenses and construction permits 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.

Section 50.36, “Technical specifications,” of 10 CFR establishes the regulatory requirements related to the content of TS. Section 50.36(a)(1) of 10 CFR requires an application for an operating license to include proposed TS. A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, must also be included in the application, but shall not become part of the TS.

The regulation in 10 CFR 50.36(b) states:

> Each license authorizing operation of a …utilization facility …will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to [10 CFR] 50.34 [“Contents of applications; technical information”]. The Commission may include such additional technical specifications as the Commission finds appropriate.

The categories of items required to be in the TS are listed in 10 CFR 50.36(c).

In accordance with 10 CFR 50.36(c)(2), limiting conditions for operation (LCOs) are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When LCOs are not met, the licensee must shut down the reactor or follow any remedial action permitted by the TS until the condition can be met. In addition, 10 CFR 50.36(c)(2)(ii)(B) requires a TS LCO of a nuclear reactor must be established for a process variable, design feature, or operating restriction that is an initial condition of a design-basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The regulation in 10 CFR 50.44(b)(2)(i) states, “All boiling water reactors with Mark I or Mark II type containments must have an inerted atmosphere.” Section 50.44(a)(1) of 10 CFR defines “inerted atmosphere” as a containment atmosphere with less than 4 percent of oxygen by volume.

The NRC staff’s guidance for the review of TS is in NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition,” Chapter 16.0, “Technical Specifications,” Revision 3, dated March 2010

(ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STS for each of the LWR nuclear designs. Accordingly, the NRC staff's review includes consideration of whether the proposed changes are consistent with the applicable reference STS (i.e., the current STS), as modified by NRC-approved travelers. The STS applicable to Susquehanna are in NUREG-1433, Revision 5.0, "Standard Technical Specifications, General Electric BWR/4 Plant," Volume 1, "Specifications," and Volume 2, "Bases," dated September 2021 (ML21272A357 and ML21272A358, respectively).

3.0 TECHNICAL EVALUATION

The proposed amendments are based on NRC-approved TSTF-568, Revision 2. The NRC staff also considered the regulations and guidance discussed in section 2.3 of this SE in its review of the proposed changes to TS 3.6.3.3.

3.1 Proposed Changes in the Applicability

In accordance with NRC-approved TSTF-568, Revision 2, the licensee proposed to expand the applicability of this LCO to Modes 1 and 2 without exception. The NRC staff finds the proposed change acceptable because it is more restrictive since an unlikely LOCA event leading to a degraded core that could produce hydrogen has the highest probability of occurrence during Modes 1 and 2 conditions.

3.2 Proposed Changes in Required Action A.1

In accordance with NRC-approved TSTF-568, Revision 2, the licensee proposed to add the following note to Required Action A.1: "LCO 3.0.4.c is applicable." TS LCO 3.0.4.c allows entering the mode of applicability of TS LCO 3.6.3.3 with the LCO not met. Therefore, the proposed change would permit entry into Modes 1 and 2 with primary containment oxygen concentration higher than the required limit. The NRC staff concludes the addition of the note is acceptable because it clarifies and simplifies the intent of the current TS LCO 3.6.3.3 applicability statement "a" of allowing startup operation with the LCO not met.

3.3 Proposed Changes in the Completion Time of Condition A

In accordance with NRC-approved TSTF-568, Revision 2, the licensee proposed changing the completion time from 24 hours to 72 hours based on the following sequence of operations: allow 24 hours to de-inert the containment to permit safe personnel access, allow 24 hours to perform the required maintenance or repair work, and allow 24 hours to inert the containment. The NRC staff determined that the presence of a higher oxygen concentration for the 72-hour completion time is appropriate, considering the low safety significance of the change for potential accidents and the additional restrictions and conservatisms in the revised applicability.

3.4 Proposed Changes in Required Action B.1

In accordance with NRC-approved TSTF-568, Revision 2, the licensee proposed to change the applicability statement of TS LCO 3.6.3.3 to Modes 1 and 2. If the oxygen concentration cannot be restored within the required limit and completion time of Required Action A.1, the reactor should be brought to Mode 3. In this mode, the reactor would be in a hot shutdown condition (control rods fully inserted) with all reactor vessel head bolts fully tensioned.

The NRC staff recognizes that on entering Mode 3, the decay heat is rapidly decreasing. Steam is initially available for operating the reactor core isolation cooling/high-pressure coolant injection steam turbine-driven pumps until the reactor pressure and, thus, water temperature is substantially reduced. As the decay heat continues to decrease, operators have increased time and options for achieving adequate water injection using the low-pressure emergency core cooling system to avoid core damage and associated generation of combustible gas. Therefore, the occurrence of a LOCA leading to degraded core is highly unlikely in Mode 3.

The NRC staff finds the proposed change in Required Action B.1 acceptable because it provides a more appropriate terminal action since it requires the plant to be placed in a mode in which the LCO does not apply, and the oxygen concentration limit is no longer required. The previous terminal action allowed an indefinite period of operation at ≤ 15 percent RTP.

Due to the low potential for hydrogen generation when the reactor is in Mode 3, inerting of containment in Mode 3 is not needed. Therefore, the NRC staff concludes the proposed change is acceptable because it continues to protect containment integrity and meets 10 CFR 50.36(c)(2) by providing the lowest functional capability of equipment required for safe operation of the plant.

3.5 Proposed Changes in the Completion Time of Condition B

In accordance with NRC-approved TSTF-568, Revision 2, the licensee proposed to change the Condition B completion time from 8 hours to 12 hours, stating that 12 hours is a reasonable time to reduce reactor power from full power conditions to Mode 3 in an orderly manner and without challenging plant systems. The proposed change from 8 hours to 12 hours for bringing the reactor to a hot shutdown condition from full power is acceptable to the NRC staff because it is not a significant change and is based on industry operating experience.

3.6 Variations

The variations are described in section 2.2.2 of this SE. The NRC staff finds these variations are acceptable because the variations do not substantively alter TS requirements.

3.7 Conclusion for Proposed Changes to TS 3.6.3.3

The NRC staff concludes the proposed changes in the applicability statement for TS 3.6.3.3 are acceptable since they are more restrictive, as the applicability now extends to Modes 1 and 2 without exception. In addition, the occurrence of a LOCA that could lead to degraded core conditions with containment de-inerted while in Mode 3 is unlikely. Therefore, the changes proposed in TS 3.6.3.3 are acceptable and continue to meet 10 CFR 50.36(c)(2).

4.0 STATE (COMMONWEALTH) CONSULTATION

In accordance with the Commission's regulations in 10 CFR 50.91(b), the NRC staff notified the Commonwealth of Pennsylvania official on February 14, 2024, of the proposed issuance of the amendments. The Commonwealth official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of facility components located within the restricted area as defined in 10 CFR Part 20, "Standards for protection against

radiation.” 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 in the *Federal Register* (89 FR 4342) on January 23, 2024, that the amendments involve no significant hazards consideration, and there has been no public comment on this 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. Ashley

Date: April 22, 2024

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 287 AND 271 RE: ADOPTION OF TSTF-568, REVISION 2 AND ASSOCIATED TECHNICAL SPECIFICATION CHANGES (EPID L-2023-LLA-0167) DATED APRIL 22, 2024

DISTRIBUTION:
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ADAMS Accession No.: ML24082A137

OFFICE	NRR/DORL/LPL1/PMiT	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA
NAME	EHerrera	AKlett	KZeleznock
DATE	03/21/2024	03/21/2024	03/22/2024
OFFICE	NRR/DSS/STSB/BC (A)	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	SMehta	HGonzález	AKlett
DATE	03/18/2024	04/22/2024	04/22/2024

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