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

February 18, 2021

Mr. Kevin Cimorelli
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. 279 AND 261 RE: REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-582, "RPV WIC ENHANCEMENTS" (EPID L-2020-LLA-0197)

Dear Mr. Cimorelli:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 279 to Renewed Facility Operating License No. NPF-14 and Amendment No. 261 to Renewed Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2, respectively. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated September 1, 2020.

Susquehanna Nuclear, LLC (the licensee) requested that the NRC process the proposed amendment under the Consolidated Line Item Improvement Process. The proposed changes revise the TSs related to reactor pressure vessel (RPV) water inventory control (WIC) based on Technical Specifications Task Force (TSTF) Traveler TSTF-582, Revision 0, "RPV WIC Enhancements," and the associated NRC staff safety evaluation of TSTF-582.

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/

Sujata Goetz, 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. 279 to License No. NPF-14
2. Amendment No. 261 to License No. NPF-22
3. Safety Evaluation

cc: Listserv

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 – ISSUANCE OF AMENDMENT NOS. 279 AND 261 RE: REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-582, "RPV WIC ENHANCEMENTS" (EPID L-2020-LLA-0197) DATED FEBRUARY 18, 2021

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ADAMS Accession No.: ML20342A237

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DSS/STSB/BC
NAME	SGoetz	LRonewicz	VCusumano
DATE	12/14/2020	12/14/2020	11/10/2020
OFFICE	OGC – NLO	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	MWood	JDanna	SGoetz
DATE	1/15/2021	2/18/2021	2/18/2021

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

SUSQUEHANNA NUCLEAR, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 279
Renewed License No. NPF-14

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

   A. The application for the amendment filed by Susquehanna Nuclear, LLC, dated September 1, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 2.C.(2) of Renewed Facility Operating License No. NPF-14 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 279, 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 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna, 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: February 18, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 279

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

RENEWED FACILITY OPERATING LICENSE NO. NPF-14

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
Page 3	Page 3

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain a marginal line indicating the areas of change.

REMOVE	INSERT
1.1-3	1.1-3
3.3-44	3.3-44
3.3-47a	3.3-47a
3.3-47b	3.3-47b
3.3-47c	3.3-47c
3.3-71	3.3-71
3.3-72	3.3-72
3.5-8	3.5-8
3.5-8a	3.5-8a
3.5-9	3.5-9
3.5-9a	--
3.5-10	3.5-10
3.5-11	3.5-11
3.8-19	3.8-19

(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. 279, 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.

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)

Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," EPA, 1988, as described in Regulatory Guide 1.183. The factors in the column headed "effective" yield doses corresponding to the CEDE. The conversion factors that are used for the calculation of EDE (or DDE) from external exposure (submersion) shall be those listed in Table III.1 of Federal Guidance Report 12, "External Exposure to Radionuclides in Air, Water, and Soil," EPA, 1993, as described in Regulatory Guide 1.183. The factors in the column headed "effective" yield doses corresponding to the EDE.

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a) The water inventory above the TAF is divided by the limiting drain rate;

b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure for all penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are closed and administratively controlled in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or

3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
f. Manual Initiation	1,2,3	2 1 per subsystem	C	SR 3.3.5.1.5	NA
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level- Low Low, Level 2	1, 2(d), 3(d)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -45 inches
b. Drywell Pressure-High	1, 2(d),3(d)	4	B	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level-High, Level 8	1, 2(d), 3(d)	2	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≤ 55.5 inches
d. Condensate Storage Tank Level-Low	1, 2(d), 3(d)	2	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 40.5 inches above tank bottom

(d) With reactor steam dome pressure > 150 psig.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Initiate action to place channel in trip. OR	Immediately
	A.2.1 Declare associated penetration flow path(s) incapable of automatic isolation. AND	Immediately
	A.2.2 Initiate action to calculate DRAIN TIME.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
These SRs apply to each Function in Table 3.3.5.2-1.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2	----------NOTE---------- A test of all required contacts does not have to be performed. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.2-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. Not Used			
2. Not Used			
3. RHR System Isolation			
a. Reactor Vessel Water Level – Low, Level 3	(a)	2 in one trip system	≥ 11.5 inches
4. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level – Low Low, Level 2	(a)	2 in one trip system	≥ -45 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Outside Air Supply System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low, Level 2	1, 2, 3	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≥ -45 inches
2. Drywell Pressure – High	1, 2, 3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.5	≤ 1.88 psig
3. Unit 1 Refuel Floor High Exhaust Duct Radiation – High	(a)	1	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 25 mR/hr
4. Unit 2 Refuel Floor High Exhaust Duct Radiation – High	(a)	1	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 25 mR/hr
5. Unit 1 Refuel Floor Wall Exhaust Duct Radiation – High	(a)	1	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 28 mR/hr
6. Unit 2 Refuel Floor Wall Exhaust Duct Radiation – High	(a)	1	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 28 mR/hr
7. Railroad Access Shaft Exhaust Duct Radiation – High	(b)	1	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 7 mR/hr
8. Main Control Room Outside Air Intake Radiation – High	1, 2, 3, (a)	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 5 mR/hr
9. Manual Initiation	1, 2, 3 (a)	1	B	SR 3.3.7.1.5	n/a

(a) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the secondary containment.

(b) During movement of irradiated fuel assemblies within the Railroad Access Shaft, and above the Railroad Access Shaft with the Railroad Access Shaft Equipment Hatch open.

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.8.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.8.1-1.	B.1 Place channel in trip.	1 hour
C. As required by Required Action A.1 and referenced in Table 3.3.8.1-1.	C.1 Restore the inoperable channel.	1 hour

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 RPV Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

----------NOTE----------
A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1	Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1	Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	AND		
	C.2	Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	AND		
	C.3	Verify one standby gas treatment (SGT) subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. DRAIN TIME < 8 hours.	D.1	---------- NOTE ---------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ----------	
		Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND		
	D.2	Initiate action to establish secondary containment boundary.	Immediately
	AND		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	AND		
	D.4	Initiate action to verify one SGT subsystem is capable of being placed in operation.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for a required LPCI subsystem, the suppression pool water level is ≥ 20 ft 0 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify, for a required Core Spray (CS) subsystem, the: a. Suppression pool water level is ≥ 20 ft 0 inches; or b. Condensate storage tank water level is ≥ 49% of capacity.	In accordance with the Surveillance Frequency Control Program.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.4	Verify, for the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	Not Used	
SR 3.5.2.6	----------NOTES---------- 1. Operation may be through the test return line. 2. Credit may be taken for normal system operation to satisfy this SR. ----------	
	Operate the required ECCS injection/spray subsystem for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	----------NOTE---------- Vessel injection/spray may be excluded. ----------	
	Verify the required ECCS injection/spray subsystem can be manually operated.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTE---------- The following SRs must be met but are not required to be performed: SR 3.8.1.3; SR 3.8.1.14; and SR 3.8.1.9; SR 3.8.1.16. SR 3.8.1.10; --- For required Unit 1 AC sources, the following SRs of Unit 1 Specification 3.8.1 are applicable: SR 3.8.1.1; SR 3.8.1.9; SR 3.8.1.3; SR 3.8.1.10; SR 3.8.1.4; SR 3.8.1.14; and SR 3.8.1.5; SR 3.8.1.16. SR 3.8.1.6;	In accordance with applicable SRs

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SUSQUEHANNA NUCLEAR, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 261
Renewed License No. NPF-22

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

   A. The application for the amendment filed by Susquehanna Nuclear, LLC, dated September 1, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 2.C.(2) of Renewed Facility Operating License No. NPF-22 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 261, 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 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna, 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: February 18, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 261

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

RENEWED FACILITY OPERATING LICENSE NO. NPF-22

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
Page 3	Page 3

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain a marginal line indicating the areas of change.

REMOVE	INSERT
1.1-3	1.1-3
1.1-3a	1.1-3a*
1.1-4	1.1-4*
3.3-47a	3.3-47a
3.3-47b	3.3-47b
3.3-47c	3.3-47c
3.3-72	3.3-72
3.5-8	3.5-8
3.5-8a	3.5-8a
3.5-9	3.5-9
3.5-10	3.5-10
3.5-11	3.5-11
3.8-21	3.8-21
3.8-22	3.8-22

*no changes; content rolled across pages only

(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. 261, 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.

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)

actually present. The conversion factors that are used for this calculation of committed effective dose equivalent (CEDE) from inhalation shall be those listed in Table 2.1 of Federal Guidelines Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," EPA, 1988, as described in Regulatory Guide 1.183. The factors in the column headed "effective" yield doses corresponding to the CEDE. The conversion factors that are used for the calculation of EDE (or DDE) from external exposure (submersion) shall be those listed in Table III.1 of Federal Guidance Report 12, "External Exposure to Radionuclides in Air, Water, and Soil," EPA, 1993, as described in Regulatory Guide 1.183. The factors in the column headed "effective" yield doses corresponding to the EDE.

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a) The water inventory above the TAF is divided by the limiting drain rate;

b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure for all penetration flow paths below the TAF except:

   1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are closed and administratively controlled in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

   2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or

1.1 Definitions

DRAIN TIME (continued)	3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power. c) The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory; d) No additional draining events occur; and e) Realistic cross-sectional areas and drain rates are used. A bounding DRAIN TIME may be used in lieu of a calculated value.
EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME	The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
END OF CYCLE RECIRCULATION PUMP TRIP (EOC RPT) SYSTEM RESPONSE TIME	The EOC RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. Times shall

1.1 Definitions

ISOLATION SYSTEM RESPONSE TIME (continued)	include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a collecting tank; or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; b. Unidentified LEAKAGE All LEAKAGE into the drywell that is not identified LEAKAGE; c. Total LEAKAGE Sum of the identified and unidentified LEAKAGE; d. Pressure Boundary LEAKAGE LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.
LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Initiate action to place channel in trip. OR	Immediately
	A.2.1 Declare associated penetration flow path(s) incapable of automatic isolation. AND	Immediately
	A.2.2 Initiate action to calculate DRAIN TIME.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
These SRs apply to each Function in Table 3.3.5.2-1.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2	----------NOTE---------- A test of all required contacts does not have to be performed. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.2-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. Not Used			
2. Not Used			
3. RHR System Isolation			
a. Reactor Vessel Water Level – Low, Level 3	(a)	2 in one trip system	≥ 11.5 inches
4. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level – Low Low, Level 2	(a)	2 in one trip system	≥ -45 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable for reasons other than Condition B.	A.1 Enter the Condition referenced in Table 3.3.8.1-1 for the channel.	Immediately
B. One or more required channels associated with Unit 1 4.16 kV ESS Buses in one Division inoperable for the performance of Unit 1 SR 3.8.1.19.	B.1 Restore the inoperable channels.	8 hours
C. As required by Required Action A.1 and referenced in Table 3.3.8.1-1.	C.1 Place channel in trip.	1 hour

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 RPV Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

----------NOTE----------
A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1	Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1	Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	AND		
	C.2	Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	AND		
	C.3	Verify one standby gas treatment (SGT) subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. DRAIN TIME < 8 hours.	D.1	----------NOTE---------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ----------	
		Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND		
	D.2	Initiate action to establish secondary containment boundary.	Immediately
	AND		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	AND		
	D.4	Initiate action to verify one SGT subsystem is capable of being placed in operation.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for a required LPCI subsystem, the suppression pool water level is ≥ 20 ft 0 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify, for a required Core Spray (CS) subsystem, the: a. Suppression pool water level is ≥ 20 ft 0 inches; or b. Condensate storage tank water level is ≥ 49% of capacity.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.4	Verify, for the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	Not Used	
SR 3.5.2.6	----------NOTES---------- 1. Operation may be through the test return line. 2. Credit may be taken for normal system operation to satisfy this SR. ----------	
	Operate the required ECCS injection/spray subsystem for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	----------NOTE---------- Vessel injection/spray may be excluded. ----------	
	Verify the required ECCS injection/spray subsystem can be manually operated.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTE---------- The following SRs must be met but are not required to be performed: SR 3.8.1.3; SR 3.8.1.14; and SR 3.8.1.9; SR 3.8.1.16. SR 3.8.1.10; ----------	
	For required Unit 2 AC sources, the following SRs of Unit 2 Specification 3.8.1 are applicable: SR 3.8.1.1; SR 3.8.1.9; SR 3.8.1.3; SR 3.8.1.10; SR 3.8.1.4; SR 3.8.1.14; and SR 3.8.1.5; SR 3.8.1.16. SR 3.8.1.6;	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.2	----------NOTE---------- When Unit 1 is in MODE 4 or 5, the Note to Unit 1 SR 3.8.2.1 is applicable for the performance of required Unit 1 SRs. ---------- For required Unit 1 AC sources, the following SRs of Unit 1 Specification 3.8.1 are applicable: SR 3.8.1.1; SR 3.8.1.9; SR 3.8.1.3; SR 3.8.1.10; SR 3.8.1.4; SR 3.8.1.14; SR 3.8.1.5; SR 3.8.1.16; SR 3.8.1.6; and SR 3.8.1.8 (when more than one Unit 1 offsite circuit is required).	In accordance with applicable SRs

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 279 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-14

AND AMENDMENT NO. 261 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

Susquehanna Nuclear, LLC (the licensee) requested changes to the technical specifications (TSs) for Susquehanna Steam Electric Station (Susquehanna), Units 1 and 2 by license amendment request (LAR, application), dated September 1, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20245E192). In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) process the proposed amendment under the Consolidated Line Item Improvement Process (CLIIP). The proposed changes would revise the TSs related to reactor pressure vessel (RPV) water inventory control (WIC) based on Technical Specifications Task Force (TSTF) Traveler TSTF-582, Revision 0, "RPV WIC Enhancements" (ADAMS Accession No. ML19240A260), and the associated NRC staff safety evaluation (SE) of TSTF-582 (ADAMS Accession No. ML20219A333).

The boiling-water reactor (BWR) RPV design includes multiple penetrations located below the top of active fuel (TAF). These penetrations provide entry for control rods, recirculation flow, reactor water cleanup, and shutdown cooling. Since these penetrations are below the TAF, this creates a potential to drain the reactor vessel water inventory and lose effective core cooling. The loss of water inventory and effective core cooling can potentially lead to fuel cladding failure and radioactive release. Drain time is the time it would take for the water inventory in and above the RPV to drain to the TAF.

1.1 Proposed TS Changes to Adopt TSTF-582

In accordance with NRC staff-approved TSTF-582, the licensee proposed changes that would revise the TSs related to RPV WIC to incorporate operating experience and to correct errors

and omissions that the licensee incorporated into the Susquehanna, Units 1 and 2, TSs when adopting TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control" (ADAMS Accession No. ML16074A448). Specifically, the licensee proposed the following changes to adopt TSTF-582:

- In the TS 1.1, "Definitions," "Drain Time" would be revised to move the examples of common mode failure mechanisms to the Bases and delete seismic events.

- In the TS 1.1, "Definitions," "Drain Time," the exception from considering the drain time for penetration flow paths isolated with manual or automatic valves that are that are "locked, sealed, or otherwise secured" would be revised to apply the exception for manual or automatic valves that are "closed and administratively controlled."

- The Actions of TS 3.3.5.2 would be revised to permit placing an inoperable isolation channel in trip as an alternative to declaring the associated penetration flow path incapable of automatic isolation.

- TS 3.3.5.2 Required Action B.2 requires calculating drain time with a completion time (CT) of "immediately." The Required Action would be renumbered as A.2.2 and revised to state, "Initiate action to calculate Drain Time."

- In TS 3.5.2, the first use of the acronym "SGT" would be defined in Required Action C.3, and the acronym "SGT" would be used in Required Action D.4.

- TS 3.5.2 and TS 3.3.5.2 would be revised to eliminate the requirement for a manual emergency core cooling system (ECCS) initiation signal to start the required ECCS injection/spray subsystem and to instead rely on manual valve alignment and pump start. TS 3.5.2 surveillance requirements (SRs) related to manual initiation using the ECCS signal (such as verifying automatic alignment of valves on an initiation signal) would be eliminated. Related to this change, the TS 3.3.5.2 functions, SRs, and Actions that only support manual initiation using an ECCS signal (including interlocks and minimum flow instruments) would be eliminated.

- Susquehanna Units 1 and 2 share secondary containment structures between units. The TS 3.5.2 Actions would be revised to recognize that an operable secondary containment and operable secondary containment isolation valves satisfy the Required Actions.

- A redundant definition of "LPCI" in SR 3.5.2.2 would be eliminated.

- SR 3.5.2.6, that requires operating the required ECCS injection/spray subsystem for at least 10 minutes through the recirculation line, would be modified by the addition of two notes. The first Note would replace the existing SR that the ECCS subsystem be run through the recirculation line with a Note that states that operation may be through the test return line. The second Note would permit crediting normal operation of the low pressure ECCS subsystem for performance of the SR.

- TS 3.8.2, "AC [Alternating Current] Sources - Shutdown," SR 3.8.2.1, would be revised to not require SRs that test the ability of the automatic diesel generator (DG) to start in Modes 4 and 5. TSTF-542 eliminated the automatic ECCS initiation in Modes 4 and 5.

1.2 Additional Proposed TS Changes

The licensee proposed to make the following additional changes:

- TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," would be revised to delete "When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, 'AC Sources – Shutdown'" from the applicability.

- SR 3.8.2.1 would be revised to remove SRs 3.8.1.7, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.15, 3.8.1.18, and 3.8.1.19 from the list of SRs that are applicable.

1.2.1 Editorial Variations

- In the Susquehanna, Unit 1 TSs, the title of Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," Function 3.a, would be revised to add one instance of the word "Low." The proposed Function 3.a title would be "Reactor Vessel Water Level – Low Low, Level 2."

- Table 3.3.5.2-1 – All the Functions

  The licensee proposed to retain the numbering for Function 3.a, "RHR [Residual Heat Removal] System Isolation, Reactor Vessel Water Level – Low, Level 3," and Function 4.a, "Reactor Water Cleanup (RWCU) System Isolation Reactor Vessel Water Level – Low Low, Level 2." Specifically, rather than deleting Functions 1 and 2 in their entirety and renumbering Functions 3 and 4, the license proposed revising Functions 1 and 2 to state, "Not Used."

- In the Susquehanna, Unit 1 TSs, the title of Table 3.3.7.1-1, Function 3, would be revised to add "High Exhaust Duct." The proposed title of Function 3 would be "Unit 1 Refuel Floor High Exhaust Duct Radiation – High."

- The licensee proposed to modify the title of TS 3.5.2 by replacing the words "Reactor Pressure Vessel" from the title with the acronym "RPV."

- The licensee proposed to retain the numbering for the existing SRs in TS 3.5.2. Specifically, rather than deleting SR 3.5.2.5 in its entirety and renumbering SR 3.5.2.6, SR 3.5.2.7, and SR 3.5.2.8, the licensee proposed revising SR 3.5.2.5 to state, "Not Used" and leaving the remaining SRs as their current numbers.

2.0 REGULATORY EVALUATION

The regulation in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(c)(2) requires that TSs include limiting conditions for operation (LCOs). Per 50.36(c)(2)(i), LCOs "are the lowest functional capability or performance levels of equipment required for safe operation of the facility." The regulation also requires that when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TS until the condition can be met.

The regulation at 10 CFR 50.36(c)(3) requires that TSs include items in the category of SRs, which are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met.

The NRC staff's guidance for the review of TSs is in Chapter 16.0, "Technical Specifications," of NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), dated March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared standard technical specifications (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 "Standard Technical Specifications, General Electric, BWR/4 Plants," NUREG 1433, Volume 1, "Specifications," and Volume 2, "Bases," Revision 4.0, dated April 2012 (ADAMS Accession Nos. ML12104A192 and ML12104A193, respectively), as modified by NRC-approved travelers.

Traveler TSTF-582 revised the STS related to RPV WIC to incorporate operating experience and to correct editorial errors in TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control." The NRC approved TSTF-542, Revision 2, on December 20, 2016 (ADAMS Package Accession No. ML16343B066). The NRC staff approved TSTF-582 under the consolidated line item improvement process (CLIIP) in letter dated August 13, 2020 (ADAMS Accession No. ML20219A333). The TSTF-582 safety evaluation (SE) states that a licensee may adopt the STS changes approved in TSTF-582, if the licensee has already adopted the STS changes approved in TSTF-542.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes to Adopt TSTF-582

The NRC staff compared the licensee's proposed TS changes in Section 1.1 of this SE against the changes approved in TSTF-582. In accordance with SRP Chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-582 are applicable to the Susquehanna TSs because Susquehanna, Units 1 and 2, are a BWR/4 design, and the NRC staff approved the TSTF-582 changes for BWR/4 designs. The licensee meets the TSTF-582 SE provision for adoption of TSTF-582 since the licensee adopted TSTF-542 on September 26, 2018 (ADAMS Accession No. ML18222A203). Therefore, the NRC staff concluded that the licensee's proposed changes to the Susquehanna TSs in Section 1.1 of this SE are acceptable in that they are consistent with TSTF-582 and the terms for use stated in the NRC SE of TSTF-582.

The NRC staff finds that proposed changes to TS 1.1, "Definition," and LCOs 3.3.5.2 and 3.5.2, correctly specify the lowest functional capability or performance levels of equipment required for safe operation of the facility in accordance with 10 CFR 50.36(c)(2)(i). In addition, the NRC staff finds that proposed changes to the actions of LCOs 3.3.5.2 and 3.5.2 are adequate remedial actions to be taken until each LCO can be met and provide protection to the health and safety of the public, thereby satisfying 10 CFR 50.36(c)(2)(i).

The NRC staff finds that the proposed revisions to the SRs in TS 3.3.5.2, 3.5.2, and 3.8.2 continue to provide requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met in accordance with 10 CFR 50.36(c)(3).

Thus, the proposed changes continue to meet the requirements of 10 CFR 50.36(c)(2)(i) and 50.36(c)(3) as discussed in Section 3.0 of the NRC SE of TSTF-582.

3.2 Additional Proposed TS Changes

The licensee proposed to make the following additional changes:

- TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," APPLICABILITY would be revised to delete "When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, 'AC Sources – Shutdown'" from the applicability.

- SR 3.8.2.1 would be revised to remove SRs 3.8.1.7, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.15, 3.8.1.18, and 3.8.1.19 from the list of SRs that are applicable.

The NRC staff notes that the above proposed changes are consistent with TSTF-583-T, Revision 0, "TSTF-582 Diesel Generator Variation" (ADAMS Accession No. ML20248H330). The NRC staff's evaluation of these additional changes is provided below.

3.2.1.1 TS 3.3.8.1 – Applicability

The licensee stated that TS 3.8.2 does not require automatic start and loading of a DG within 10 seconds on an ECCS initiation signal or a loss-of-offsite-power (LOOP) signal. Currently, TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," is applicable in Modes 1, 2, and 3, and when the associated DG is required to be operable by TS 3.8.2. The NRC staff confirmed that TS 3.8.2 no longer requires automatic start and loading of a DG on a LOP signal. The NRC staff finds it acceptable to revise the Applicability of LCO 3.3.8.1 by deleting "When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, 'AC Sources – Shutdown'," because the LOP instrumentation that generates the LOP signal does not need to be operable when the DG is required to be operable by TS 3.8.2. Therefore, the NRC staff concludes that the LCO applicability changes will continue to provide for the lowest functional capability or performance levels of equipment required for safe operation of the facility and, therefore, meet the LCO requirements of 10 CFR 50.36(c)(2).

3.2.1.2 SR 3.8.2.1

LCO 3.8.2, "AC Sources - Shutdown," requires one offsite circuit and two DGs capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown," to be operable in shutdown conditions. The existing SR 3.8.2.1 lists the TS 3.8.1 SRs that are applicable in shutdown conditions with some exceptions.

TS SR 3.8.1.7 and SR 3.8.1.15 require that the DG starts from standby or hot conditions, respectively, and achieves required voltage and frequency within 10 seconds within required steady state voltage and frequency ranges. The 10-second start requirement associated with the DG automatic start supports assumptions in the design-basis loss-of-coolant accident analysis. The NRC staff confirmed that 10-second timing is not required during a manual DG start to respond to a draining event, which has a minimum drain time of 1 hour. In addition, SR 3.8.1.2, which requires the DG to start from standby conditions and achieve the required steady state voltage and frequency ranges, is applicable under SR 3.8.2. The NRC staff finds that the SR 3.8.1.7 and SR 3.8.1.15 testing for the DG's capability to achieve required steady state voltage and frequency ranges will be performed in SR 3.8.1.2, since SR 3.8.1.2 provides

the test for this DG capability. Therefore, the NRC staff finds it acceptable to add SR 3.8.1.7 and SR 3.8.1.15 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1.

TS SR 3.8.1.18 states, "Verify each sequenced load is within required limits of the design interval." This SR verifies the 10 percent load sequence time interval tolerance between each sequenced load block when loads are sequentially connected to the engineered safety features (ESF) bus by an automatic sequencer while the DG is tied to the ESF bus. TS 3.5.2 requires manual starting of the equipment for water injection to respond to a draining event so that the DG will be manually loaded during a draining event. No other postulated events require automatic loading of the DG during shutdown conditions. The NRC staff confirmed that with respect to SR 3.8.18, the load sequencer is used for the automatic loading of the DG and is not used during a manual loading of the DG. Therefore, the NRC staff finds it acceptable to add SR 3.8.1.18 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1.

The Susquehanna Unit 2 TSs contain an additional SR 3.8.2.2, which requires that certain SRs from Unit 1 LCO 3.8.1 are met for Unit 2. The licensee proposed modifying Unit 2 SR 3.8.2.2 by eliminating SR 3.8.1.7, SR 3.8.1.11, SR 3.8.1.15, SR 3.8.1.18, and SR 3.8.1.19 from the list of required Unit 1 LCO 3.8.1 SRs in Susquehanna, Unit 2 SR 3.8.2.2. The NRC staff finds the proposed change acceptable because the list of SRs to be removed is equivalent to the changes made to SR 3.8.2.1 for each unit's TSs and is needed to align the operability requirements for Unit 1 AC sources powering Unit 2 equipment with the operability requirements for Unit 1 AC sources powering only Unit 1 equipment.

The NRC staff finds that the proposed changes to revise SR 3.8.2.1 are acceptable because the remaining applicable SRs will continue to demonstrate the operability of the required AC power sources and, as such, ensure the availability of the AC power required to operate the plant in a safe manner and mitigate postulated events during shutdown conditions. Therefore, the NRC staff finds the proposed changes to SR 3.8.2.1 are acceptable because the changes continue to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the associated LCO will continue to be met in accordance with 10 CFR 50.36(c)(3).

3.2.2 Editorial Changes

The NRC staff reviewed the editorial variations proposed by the licensee described in Section 1.2.2 of this SE.

The licensee proposed to correct an editorial error in Susquehanna Unit 1 TS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," Function 3.a. The licensee stated that during adoption of TSTF-542, one instance of the word "Low" was inadvertently deleted. The function should be titled "Reactor Vessel Water Level – Low Low, Level 2." However, it is currently titled, "Reactor Vessel Water Level – Low Level 2." The NRC staff reviewed the correction and found it acceptable because the correct title used in the Susquehanna Updated Safety Analysis Review (UFSAR) and TSs is "Reactor Vessel Water Level – Low Low Level 2." The NRC staff finds this change acceptable because it is editorial and does not substantively change the TS requirements.

The licensee proposed to retain the numbering for Table 3.3.5.2-1, Functions 3.a and 4.a. Rather than deleting Functions 1 and 2 in their entirety and re-numbering Functions 3 and 4, Functions 1 and 2 will be revised to state, "Not Used." The licensee also proposed to retain the numbering for the existing Surveillance Requirements (SRs) in TS 3.5.2. Specifically, rather

than deleting SR 3.5.2.5 in its entirety and re-numbering SR 3.5.2.6, SR 3.5.2.7, and SR 3.5.2.8, the licensee proposes revising SR 3.5.2.5 to state, "Not Used" and leave the remaining SRs as their current number. The NRC staff finds this variation acceptable because it is editorial and does not substantively change the TS requirements. The proposed changes eliminate the need to revise existing Susquehanna Surveillance Procedures for the sole purpose of a changed SR number within TS 3.5.2 and Table 3.3.5.2-1.

The licensee proposed to correct an editorial error that was introduced during the adoption of TSTF-542. The licensee stated that during adoption of TSTF-542, an editorial error was introduced into the Susquehanna Unit 1 TSs. In Table 3.3.7.1-1, "Control Room Emergency Outside Air Supply System Instrumentation," Function 3, the words "High Exhaust Duct" were inadvertently deleted. Function 3 should be titled, "Unit 1 Refuel Floor High Exhaust Duct Radiation – High." However, it is currently titled, "Unit 1 Refuel Floor Radiation – High." The NRC staff reviewed the correction and found it acceptable because the correct title used in the Susquehanna UFSAR and TSs is "Unit 1 Refuel Floor High Exhaust Duct Radiation – High." The NRC staff finds this change acceptable because it is editorial and does not substantively change the TS requirements.

The licensee proposed to modify the title of TS 3.5.2, to replace the words "Reactor Pressure Vessel" from the title with the acronym "RPV." The licensee stated that RPV is defined in the title of Chapter 3.5 of the TS; it is redundant to redefine the acronym in the title of TS 3.5.2. This change aligns TS 3.5.2 with TS 3.5.1 and TS 3.5.3. The NRC staff finds this change acceptable because it is editorial and does not substantively change the TS requirements.

Finally, the NRC staff reviewed the proposed TS changes for technical clarity and consistency with the existing requirements for customary terminology and formatting. The NRC staff finds that the proposed changes are consistent with Chapter 16 of the SRP and are therefore acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments on December 14, 2020. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or change SRs. 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 published in the *Federal Register* on October 6, 2020 (85 FR 63149). 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.

Principal Contributor: T. Sweat

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