



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

March 4, 2021

Mr. John A. Krakuszeski  
Site Vice President  
Brunswick Steam Electric Plant  
Duke Energy Progress, LLC  
8470 River Rd. SE (M/C BNP001)  
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – ISSUANCE  
OF AMENDMENT NOS. 303 AND 331 RE: REVISE TECHNICAL  
SPECIFICATION TO ADOPT TSTF-582, "REACTOR PRESSURE  
VESSEL WATER INVENTORY CONTROL ENHANCEMENTS"  
(EPID L-2020-LLA-0218)

Dear Mr. Krakuszeski:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 303 and 331 to Renewed Facility Operating License Nos. DPR-71 and DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2. The amendments consist of changes to the technical specifications (TSs) in response to your application dated September 24, 2020, and supplemented on November 17, 2020.

The amendments adopt Technical Specifications Task Force (TSTF) Traveler TSTF-582, "Reactor Pressure Vessel Water Inventory Control (RPV WIC) Enhancements." The amendments revise the following TSs:

- The Drain Time definition in TS 1.1 would be revised to move the examples of common mode failure mechanisms to the Bases and delete seismic events.
- In TS 1.1, Drain Time definition, the exception from considering the Drain Time for penetration flow paths isolated with manual or automatic valves 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 3.3.5.3 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 3.3.5.3, Required Action B.2 requires calculating Drain Time with a Completion Time of "immediately." The Required Action would be renumbered as A.2.2 and revised to state, "Initiate action to calculate Drain Time."

- TS 3.3.5.3 Functions related to Core Spray System and Low-Pressure Coolant Injection System would be eliminated (rely on manual valve alignment and pump start).
- 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.
- A redundant definition of “LPCI” in Surveillance Requirement (SR) 3.5.2.2 would be eliminated.
- SR 3.5.2.5, related to verifying alignment of valves, would be eliminated (rely on manual valve alignment).
- SR 3.5.2.6, which requires operating the required Emergency Core Cooling System (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.
- The Applicability of TS 3.6.1.3, “Primary Containment Isolation Valves (PCIVs),” would be revised to delete the phrase, “When associated instrumentation is required to be OPERABLE per Limiting Condition for Operation (LCO) 3.3.6.1, ‘Primary Containment Isolation Instrumentation.’” This would make TS 3.6.1.3 only applicable in Modes 1, 2, and 3. Following adoption of TSTF-542, no functions in LCO 3.3.6.1 are applicable outside of Modes 1, 2, or 3. The Actions of TS 3.6.1.3 would be revised to reflect this change.
- 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 to start in Modes 4 and 5. TSTF-542 eliminated the automatic ECCS initiation in Modes 4 and 5.

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

Sincerely,

**/RA/**

Andrew Hon, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosures:

1. Amendment No. 303 to  
License No. DPR-71
2. Amendment No. 331 to  
License No. DPR-62
3. Safety Evaluation

cc: Listserv



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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 303  
Renewed License No. DPR-71

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by Duke Energy Progress, LLC (the licensee), dated September 24, 2020, and supplemented on November 17, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-71 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 303, are hereby incorporated in the license. Duke Energy Progress, LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented in 120 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Undine S. Shoop, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

Date of Issuance: March 4, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 303

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

RENEWED FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Replace page 6 of Renewed Facility Operating License No. DPR-71 with the attached page 6.

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 marginal lines indicating the areas of change.

<u>Remove Page</u>	<u>Insert Page</u>
1.1-3	1.1-3
3.3-48a	3.3-48a
3.3-48b	3.3-48b
3.3-48c	3.3-48c
3.3-69	3.3-69
3.5-9	3.5-9
3.5-10	3.5-10
3.5-11	3.5-11
3.5-12	3.5-12
3.6-7	3.6-7
3.6-10	3.6-10
3.8-19	3.8-19

(c) Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2. below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2. above.
2. The licensee shall implement the modifications to its facility, as described in Table S-1, "Plant Modifications Committed," of Duke letter BSEP 14-0122, dated November 20, 2014, to complete the transition to full compliance with 10 CFR 50.48(c) by the startup of the second refueling outage for each unit after issuance of the safety evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
3. The licensee shall complete all implementation items, except item 9, listed in LAR Attachment S, Table S-2, "Implementation Items," of Duke letter BSEP 14-0122, dated November 20, 2014, within 180 days after NRC approval unless the 180<sup>th</sup> day falls within an outage window; then, in that case, completion of the implementation items, except item 9, shall occur no later than 60 days after startup from that particular outage. The licensee shall complete implementation of LAR Attachment S, Table S-2, Item 9, within 180 days after the startup of the second refueling outage for each unit after issuance of the safety evaluation.

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

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2923 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 303, are hereby incorporated in the license. Duke Energy Progress, LLC shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 203 to Renewed Facility Operating License DPR-71, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 203. For SRs that existed prior to Amendment 203, including SRs with modified acceptance criteria and SRs whose frequency of

## 1.1 Definitions

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DOSE EQUIVALENT I-131 (continued)	Submersion, and Ingestion," 1989 and FGR 12, "External Exposure to Radionuclides in Air, Water, and Soil," 1993.
DRAIN TIME	<p>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:</p> <ul style="list-style-type: none"> <li>a) The water inventory above the TAF is divided by the limiting drain rate;</li> <li>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: <ul style="list-style-type: none"> <li>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;</li> <li>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</li> <li>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.</li> </ul> </li> <li>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;</li> </ul>

(continued)

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### 3.3 INSTRUMENTATION

#### 3.3.5.3 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.3 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.3-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.3-1.

#### 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.	Immediately
	<u>OR</u>	
	A.2.1 Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	<u>AND</u>	
	A.2.2 Initiate action to calculate DRAIN TIME.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
These SRs apply to each Function in Table 3.3.5.3-1.

SURVEILLANCE	FREQUENCY
SR 3.3.5.3.1      Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.2      Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.3-1 (page 1 of 1)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. RHR System Isolation			
a. Reactor Vessel Water Level—Low Level 1	(a)	2 in one trip system	≥ 153 inches
2. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level—Low Level 2	(a)	2 in one trip system	≥ 101 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 channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2      Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	<u>AND</u> C.3      Verify one standby gas treatment (SGT) subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours
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
	<u>AND</u> D.2      Initiate action to establish secondary containment boundary.  <u>AND</u>	Immediately  (continued)

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.	Immediately
	<u>AND</u> D.4 Initiate action to verify one SGT subsystem is capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met.  <u>OR</u>  DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to $\geq 36$ hours.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.2.1 Verify DRAIN TIME $\geq 36$ 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 $\geq -31$ inches.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.3	<p>Verify, for a required core spray (CS) subsystem, the:</p> <ul style="list-style-type: none"> <li>a. Suppression pool water level is <math>\geq</math> -31 inches; or</li> <li>b. Condensate storage tank water volume is <math>\geq</math> 228,200 gallons.</li> </ul>	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	<p>-----NOTES-----</p> <ul style="list-style-type: none"> <li>1. Operation may be through the test return line.</li> <li>2. Credit may be taken for normal system operation to satisfy this SR.</li> </ul> <p>-----</p> <p>Operate the required ECCS injection/spray subsystem for <math>\geq</math> 10 minutes.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	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 3.5.2.7	<p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify the required ECCS injection/spray subsystem can be manually operated.</p>	In accordance with the Surveillance Frequency Control Program



### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

- NOTES-----
1. Penetration flow paths may be unisolated intermittently under administrative controls.
  2. Separate Condition entry is allowed for each penetration flow path.
  3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
  4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.
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CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two PCIVs. -----</p> <p>One or more penetration flow paths with one PCIV inoperable except for MSIV leakage not within limit.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>8 hours</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more penetration flow paths with one or more MSIVs not within MSIV leakage rate limits.	D.1 Restore leakage rate to within limit.	8 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required DGs inoperable.	C.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	C.3 Initiate action to restore required DGs to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY								
<p>SR 3.8.2.1 -----NOTE-----</p> <p>Unless required to be performed by Unit 2 Specification 3.8.1, the following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9, and SR 3.8.1.11.</p> <p>-----</p> <p>The following SRs are applicable for AC sources required to be OPERABLE:</p> <table> <tr> <td>SR 3.8.1.1</td><td>SR 3.8.1.5</td></tr> <tr> <td>SR 3.8.1.2</td><td>SR 3.8.1.6</td></tr> <tr> <td>SR 3.8.1.3</td><td>SR 3.8.1.9</td></tr> <tr> <td>SR 3.8.1.4</td><td>SR 3.8.1.11</td></tr> </table>	SR 3.8.1.1	SR 3.8.1.5	SR 3.8.1.2	SR 3.8.1.6	SR 3.8.1.3	SR 3.8.1.9	SR 3.8.1.4	SR 3.8.1.11	In accordance with applicable SRs
SR 3.8.1.1	SR 3.8.1.5								
SR 3.8.1.2	SR 3.8.1.6								
SR 3.8.1.3	SR 3.8.1.9								
SR 3.8.1.4	SR 3.8.1.11								



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

DUKE ENERGY PROGRESS, LLC

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 331  
Renewed License No. DPR-62

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by Duke Energy Progress, LLC (the licensee), dated September 24, 2020, and supplemented on November 17, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-62 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 331, are hereby incorporated in the license. Duke Energy Progress, LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented in 120 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Undine S. Shoop, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

Date of Issuance: March 4, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 331

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace page 6 of Renewed Facility Operating License No. DPR-62 with the attached page 6.

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 marginal lines indicating the areas of change.

<u>Remove Page</u>	<u>Insert Page</u>
1.1-3	1.1-3
3.3-48a	3.3-48a
3.3-48b	3.3-48b
3.3-48c	3.3-48c
3.3-69	3.3-69
3.5-9	3.5-9
3.5-10	3.5-10
3.5-11	3.5-11
3.5-12	3.5-12
3.6-7	3.6-7
3.6-10	3.6-10
3.8-19	3.8-19

(c) Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2. below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2. above.
2. The licensee shall implement the modifications to its facility, as described in Table S-1, "Plant Modifications Committed," of Duke letter BSEP 14-0122, dated November 20, 2014, to complete the transition to full compliance with 10 CFR 50.48(c) by the startup of the second refueling outage for each unit after issuance of the safety evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
3. The licensee shall complete all implementation items, except Item 9, listed in LAR Attachment S, Table S-2, "Implementation Items," of Duke letter BSEP 14-0122, dated November 20, 2014, within 180 days after NRC approval unless the 180<sup>th</sup> day falls within an outage window; then, in that case, completion of the implementation items, except item 9, shall occur no later than 60 days after startup from that particular outage. The licensee shall complete implementation of LAR Attachment S, Table S-2, Item 9, within 180 days after the startup of the second refueling outage for each unit after issuance of the safety evaluation.

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

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2923 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 331, are hereby incorporated in the license. Duke Energy Progress, LLC shall operate the facility in accordance with the Technical Specifications. |

For Surveillance Requirements (SRs) that are new in Amendment 233 to Renewed Facility Operating License DPR-62, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 233. For SRs that existed prior to Amendment 233,

## 1.1 Definitions

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DOSE EQUIVALENT I-131 (continued)	Submersion, and Ingestion," 1989 and FGR 12, "External Exposure to Radionuclides in Air, Water, and Soil," 1993.
DRAIN TIME	<p>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:</p> <ul style="list-style-type: none"> <li>a) The water inventory above the TAF is divided by the limiting drain rate;</li> <li>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: <ul style="list-style-type: none"> <li>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;</li> <li>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</li> <li>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.</li> </ul> </li> <li>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;</li> </ul>

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(continued)



### 3.3 INSTRUMENTATION

#### 3.3.5.3 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.3 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.3-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.3-1.

#### 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.	Immediately
	<u>OR</u>	
	A.2.1 Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	<u>AND</u>	
	A.2.2 Initiate action to calculate DRAIN TIME.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
These SRs apply to each Function in Table 3.3.5.3-1.

SURVEILLANCE	FREQUENCY
SR 3.3.5.3.1      Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.2      Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.3-1 (page 1 of 1)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1. RHR System Isolation			
a. Reactor Vessel Water Level—Low Level 1	(a)	2 in one trip system	$\geq 153$ inches
2. Reactor Water Cleanup (RWCU) System Isolation			
a. Reactor Vessel Water Level—Low Level 2	(a)	2 in one trip system	$\geq 101$ 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 channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2      Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	<u>AND</u> C.3      Verify one standby gas treatment (SGT) subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours
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 $\geq 36$ hours.	Immediately
	<u>AND</u> D.2      Initiate action to establish secondary containment boundary.	Immediately
	<u>AND</u>	(continued)

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.	Immediately
	<u>AND</u> D.4 Initiate action to verify one SGT subsystem is capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met.  <u>OR</u>  DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to $\geq 36$ hours.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.2.1 Verify DRAIN TIME $\geq 36$ 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 $\geq -31$ inches.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.3	<p>Verify, for a required core spray (CS) subsystem, the:</p> <ul style="list-style-type: none"> <li>a. Suppression pool water level is <math>\geq</math> -31 inches; or</li> <li>b. Condensate storage tank water volume is <math>\geq</math> 228,200 gallons.</li> </ul>	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	<p>-----NOTES-----</p> <ul style="list-style-type: none"> <li>1. Operation may be through the test return line.</li> <li>2. Credit may be taken for normal system operation to satisfy this SR.</li> </ul> <p>-----</p> <p>Operate the required ECCS injection/spray subsystem for <math>\geq</math> 10 minutes.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	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 3.5.2.7	<p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify the required ECCS injection/spray subsystem can be manually operated.</p>	In accordance with the Surveillance Frequency Control Program



### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

- NOTES-----
1. Penetration flow paths may be unisolated intermittently under administrative controls.
  2. Separate Condition entry is allowed for each penetration flow path.
  3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
  4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two PCIVs. -----</p> <p>One or more penetration flow paths with one PCIV inoperable except for MSIV leakage not within limit.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>8 hours</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more penetration flow paths with one or more MSIVs not within MSIV leakage rate limits.	D.1 Restore leakage rate to within limit.	8 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required DGs inoperable.	C.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	C.3 Initiate action to restore required DGs to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY								
<p>SR 3.8.2.1 -----NOTE-----</p> <p>Unless required to be performed by Unit 1 Specification 3.8.1, the following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9, and SR 3.8.1.11, .</p> <p>-----</p> <p>The following SRs are applicable for AC sources required to be OPERABLE:</p> <table> <tr> <td>SR 3.8.1.1</td><td>SR 3.8.1.5</td></tr> <tr> <td>SR 3.8.1.2</td><td>SR 3.8.1.6</td></tr> <tr> <td>SR 3.8.1.3</td><td>SR 3.8.1.9</td></tr> <tr> <td>SR 3.8.1.4</td><td>SR 3.8.1.11</td></tr> </table>	SR 3.8.1.1	SR 3.8.1.5	SR 3.8.1.2	SR 3.8.1.6	SR 3.8.1.3	SR 3.8.1.9	SR 3.8.1.4	SR 3.8.1.11	<p>In accordance with applicable SRs</p>
SR 3.8.1.1	SR 3.8.1.5								
SR 3.8.1.2	SR 3.8.1.6								
SR 3.8.1.3	SR 3.8.1.9								
SR 3.8.1.4	SR 3.8.1.11								



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 303 AND 331

TO RENEWED FACILITY OPERATING LICENSES NOS. DPR-71 AND DPR-62

DUKE ENERGY PROGRESS, LLC

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

## 1.0 INTRODUCTION

By letter dated September 24, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20272A091), as supplemented on November 17, 2020 (ADAMS Accession No. ML20323A405), Duke Energy Progress, LLC (Duke Energy or the licensee) submitted a license amendment request (LAR) for Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) review the proposed amendment under the Consolidated Line Item Improvement Process (CLIIP).

The proposed changes would revise the Technical Specifications (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," (henceforth TSTF-582) (ADAMS Accession No. ML19240A260) and the associated NRC staff safety evaluation (SE) of TSTF-582 (ADAMS Accession No. ML20219A333). The licensee proposed TS changes described in the approved TSTF-582, Revision 0, and the variations are evaluated by the NRC staff in Section 3.3 of this SE.

The licensee's supplement dated November 17, 2020, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 8, 2020 (85 FR 55507).

## 2.0 REGULATORY EVALUATION

### 2.1 DESCRIPTION OF REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL

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 (RWCU), 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.

## 2.2 PROPOSED CHANGES TO THE TECHNICAL SPECIFICATIONS

### 2.2.1 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 BSEP, Units 1 and 2, TS 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:

- The Drain Time definition in TS 1.1 would be revised to move the examples of common mode failure mechanisms to the Bases and delete seismic events.
- In TS 1.1, Drain Time definition, the exception from considering the Drain Time for penetration flow paths isolated with manual or automatic valves 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 3.3.5.3 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 3.3.5.3, Required Action B.2 requires calculating Drain Time with a Completion Time of "immediately." The Required Action would be renumbered as A.2.2 and revised to state, "Initiate action to calculate Drain Time."
- TS 3.3.5.3, Functions related to Core Spray System and Low-Pressure Coolant Injection System would be eliminated (rely on manual valve alignment and pump start).
- 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.
- A redundant definition of "LPCI" in Surveillance Requirement (SR) 3.5.2.2 would be eliminated.
- SR 3.5.2.5, related to verifying alignment of valves, would be eliminated (rely on manual valve alignment).
- SR 3.5.2.6, which requires operating the required Emergency Core Cooling System (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.

- The Applicability of TS 3.6.1.3, “Primary Containment Isolation Valves (PCIVs),” would be revised to delete the phrase, “When associated instrumentation is required to be OPERABLE per Limiting Condition for Operation (LCO) 3.3.6.1, ‘Primary Containment Isolation Instrumentation.’” This would make TS 3.6.1.3 only applicable in Modes 1, 2, and 3. Following adoption of TSTF-542, no functions in LCO 3.3.6.1 are applicable outside of Modes 1, 2, or 3. The Actions of TS 3.6.1.3 would be revised to reflect this change.
- 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 to start in Modes 4 and 5. TSTF-542 eliminated the automatic ECCS initiation in Modes 4 and 5.

## 2.2.2 Additional Proposed TS Changes

The licensee described the following variations from the TS changes described in TSTF-582 or the applicable parts of the NRC staff’s evaluation. The licensee stated in the LAR that these variations do not affect the applicability of TSTF-582 to the proposed license amendment. The NRC evaluated each variation discussed below in Section 3 of this SE.

### 2.2.2.1 Proposed TS Changes Identified in TSTF-583-T

The licensee proposed to make the following changes consistent with TSTF-583-T, “TSTF-582 Diesel Generator Variation” (ADAMS Accession No. ML20248H330):

- 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 add SR 3.8.1.7 and SR 3.8.1.13 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1. The format of SR 3.8.2.1 would also be restructured to list the SRs that are still applicable, instead of listing the SRs that are not applicable.

### 2.2.2.2 Editorial Variations

The licensee noted that BSEP TSs have different numbering than standard technical specifications (STSs) for the RPV WIC related TS. Specifically, the following differences exist:

- STS 3.3.5.2, “Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation,” is BSEP TS 3.3.5.3, “Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation”
- STS 3.3.5.2, Condition E, corresponds to BSEP TS 3.3.5.3, Condition D
- STS 3.6.1.3, Condition F, corresponds to BSEP TS 3.6.1.3, Condition E
- STS 3.6.1.3, Condition H, corresponds to BSEP TS 3.6.1.3, Condition F
- STS SR 3.6.1.3.13, corresponds to BSEP SR 3.6.1.3.9
- STS SR 3.8.1.10, corresponds to BSEP SR 3.8.1.9
- STS SR 3.8.1.13, corresponds to BSEP SR 3.8.1.10

- STS SR 3.8.1.17, corresponds to BSEP SR 3.8.1.12
- STS SR 3.8.1.18, corresponds to BSEP SR 3.8.1.13
- STS SR 3.8.1.19, corresponds to BSEP SR 3.8.1.14

### 2.2.3 Differences from the STS

The licensee noted that BSEP TSs requirements differ from the STS on which TSTF-582 was based. Specifically, the following differences exist:

- The BSEP TS do not include an equivalent to STS 3.6.1.3, Condition G.
- The BSEP TS 3.6.1.3 does not include SRs equivalent to STS SR 3.6.1.3.1, SR 3.6.1.3.2, SR 3.6.1.3.7, SR 3.6.1.3.12, SR 3.6.1.3.14, and SR 3.6.1.3.15.
- BSEP TS 3.8.1 does not include SRs equivalent to STS SR 3.8.1.9, SR 3.8.1.11, SR 3.8.1.12, SR 3.8.1.15, SR 3.8.1.16, and SR 3.8.1.20. BSEP SR 3.8.2.1 is updated to reflect BSEP SRs contained in TS 3.8.1.

### 2.2.4 Differences from Adoption of TSTF-542

The licensee noted that BSEP TSs have differences that were approved as variations to TSTF-542 and do not impact the applicability of TSTF-582 to the BSEP TS. Specifically, the following differences exist:

- As discussed in TSTF-582, BSEP does not have an ECCS manual initiation signal. Crediting manual starting of pumps and manual valve alignment to permit the required ECCS injection/spray subsystem to inject into the RPV was approved as a variation to TSTF-542 (i.e., Amendments 283 and 311 for BSEP Units 1 and 2, respectively, issued on April 13, 2018 (ADAMS Accession No. ML18039A444)).
- Similarly, BSEP TS Table 3.3.5.3-1 does not include Functions equivalent to STS Table 3.3.5.2-1 Function 1.b, "Core Spray Pump Discharge Flow - Low (Bypass)," and Function 2.b, "Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)." As a result of the above variations, requirements equivalent to STS TS 3.3.5.2 Condition D and SR 3.3.5.2.3 were not included in BSEP TS 3.3.5.3.
- Also, existing BSEP SR 3.5.2.8 is currently worded as proposed by TSTF-582.

## 2.3 APPLICABLE REGULATORY REQUIREMENTS AND GUIDANCE

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36 c)(2) requires that TSs include LCOs. Per 10 CFR 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), March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STSs for each of the LWR nuclear designs. Accordingly, the NRC staff's review includes consideration of whether the proposed changes are consistent with the NUREG-1433,<sup>1</sup> as modified by NRC-approved travelers.

TSTF-582 revised the STSs related to RPV WIC to incorporate operating experience and to correct editorial errors in TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control" (ADAMS Accession No. ML16074A448). The NRC approved TSTF-542, Revision 2, on December 20, 2016 (ADAMS Package Accession No. ML16343B066). The NRC staff approved TSTF-582 under the CLIIP in its letter dated August 13, 2020 (ADAMS Accession No. ML20219A333). The TSTF-582, 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 the SRP Chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-582 are applicable to BSEP Units 1 and 2, TSs because the BSEP Units 1 and 2 are BWR/4 designs, 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 April 13, 2018 (ADAMS Accession No. ML18039A444). Therefore, the NRC staff concludes that the licensee's proposed changes to the BSEP Units 1 and 2, 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 staff's SE of TSTF-582.

The NRC staff finds that proposed changes to the TS 1.1 definition and LCOs 3.3.5.3 and 3.6.1.3 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). Also, the NRC staff finds the proposed changes to the Actions of LCOs 3.3.5.3, 3.5.2, and 3.6.1.3 are adequate remedial actions to be taken until each LCO can be met that 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 3.3.5.3, 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 10 CFR 50.36(c)(3) as discussed in Section 3.0 of the NRC staff's SE of TSTF-582.

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<sup>1</sup>U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric, BWR/4 Plants," NUREG-1433, Volume 1, "Specifications," and Volume 2, "Bases," Revision 4.0, April 2012 (ADAMS Accession Nos. ML12104A192 and ML12104A193, respectively).



## 3.2 Additional Proposed TS Changes

### 3.2.1 Proposed TS Changes to Adopt TSTF-583-T

Refer to Section 2.2.2.1 of this SE for proposed changes.

#### 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 diesel generator (DG) on an ECCS initiation signal or a loss of offsite power 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

The BSEP TS LCO 3.8.2, "AC Sources - Shutdown," specifies AC electrical power sources (i.e., qualified circuits and DGs) 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. The licensee proposes to add SR 3.8.1.7 and SR 3.8.1.13 to the list of SRs that are not applicable under SR 3.8.2.1.

TS SR 3.8.1.7 requires that the DG starts from standby and achieves required voltage and frequency within 10 seconds and required steady state voltage and frequency ranges. The 10-second start requirement associated with the DG automatic start supports the 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 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 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1.

TS SR 3.8.1.13 states, "Verify interval between each sequenced load block is within  $\pm 10\%$  of design interval for each load sequence relay." 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 relay logic schemes that perform a function equivalent to a load 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 3.8.13, the relay logic schemes that perform a function equivalent to a load

sequencer are used for the automatic loading of the DG and are not used during a manual loading of the DG. Therefore, the NRC staff finds it acceptable to add SR 3.8.1.13 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1.

Additionally, the licensee proposed to recast SR 3.8.2.1 from a listing of exceptions (i.e., a list of TS 3.8.1 SRs that do not need to be performed) to a listing the SRs that need to be performed to demonstrate the operability of the offsite and onsite AC power sources during shutdown conditions. The NRC staff confirmed that the list of SRs that need to be performed during shutdown conditions are correctly listed in SR 3.8.2.1. The NRC staff finds that the proposed revision of SR 3.8.2.1 is acceptable because it is an editorial clarification and does not substantively change TS requirements.

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

Refer to Section 1.2.2 of this SE for a list of the editorial differences.

The licensee noted that BSEP TSs have different numbering than STS for the RPV WIC related TS. The NRC staff finds that the different TS numbering changes are acceptable because they are editorial clarifications and do not substantively change TS requirements.

### 3.2.3 Differences from the STS

The licensee noted that BSEP TS requirements differ from the STS on which TSTF-582 was based. Refer to Section 1.2.3 of this SE for a summary of these differences.

#### 3.2.3.1 TS 3.6.1.3 Differences

The licensee noted that BSEP TS do not include an equivalent to STS 3.6.1.3 Condition G. STS 3.6.1.3 Condition G was to be deleted as part of any plant-specific adoption of NRC approved TSTF-582. The NRC staff finds this difference between the BSEP TS and the STS on which TSTF-582 was based is acceptable because the BSEP TS do not contain an equivalent to STS 3.6.1.3 Condition G and therefore, no deletion is necessary for BSEP to adopt TSTF-582.

The licensee also noted that BSEP TS 3.6.1.3 does not include SRs equivalent to STS SR 3.6.1.3.1, SR 3.6.1.3.2, SR 3.6.1.3.7, SR 3.6.1.3.12, SR 3.6.1.3.14, and SR 3.6.1.3.15. As described in NRC approved TSTF-582, each of these STS SRs had an SR Note stating that the SR is "Only required to be met in MODES 1, 2, and 3." As described in TSTF-582, these STS SR notes would be deleted. The NRC staff confirmed that BSEP TS 3.6.1.3 SRs do not contain a similar Note. The NRC staff finds this difference between the BSEP TS and the STS on which TSTF-582 was based is acceptable because the BSEP TS do not contain SRs equivalent to

STS SRs and therefore, the deletion of a Note (i.e., Only required to be met in MODES 1, 2, 3,) is not necessary in order for BSEP to adopt TSTF-582.

#### 3.2.3.2 TS 3.8.1 Differences

The licensee noted that BSEP TS 3.8.1 does not include SRs equivalent to STS SR 3.8.1.9, SR 3.8.1.11, SR 3.8.1.12, SR 3.8.1.15, SR 3.8.1.16, and SR 3.8.1.20. The NRC confirmed that no changes to these STS surveillance requirements were proposed as part of the NRC approved TSTF-582. Therefore, the NRC staff finds these differences between BSEP TS and STS do not affect the applicability of TSTF-582 justification and assessment of these STS differences is not necessary for BSEP to adopt TSTF-582.

#### 3.2.4 Differences from Adoption of TSTF-542

Refer to Section 1.2.4 of this SE for differences from adoption of TSTF-542.

The licensee noted that BSEP TSs have differences that were approved as variations to TSTF-542 and do not impact the applicability of TSTF-582 to the BSEP TS. The NRC confirmed these differences identified by the licensee as part of adopting TSTF-542.

The NRC staff finds each of these BSEP TS differences are acceptable because they were approved as variations to TSTF-542 and do not impact the applicability of TSTF-582 to the BSEP TS.

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 16.0 of the SRP and are therefore acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the North Carolina State official was notified of the proposed issuance of the amendment on January 22, 2021. The State official had no comments.

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to the 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 that the amendment involves no significant hazards consideration, which was published in the *Federal Register* on September 8, 2020 (85 FR 55507), and there has been no public comment on such finding. Accordingly, the amendment meets 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 Contributors: C. Ashley, NRR

Date: March 4, 2021

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – ISSUANCE OF AMENDMENT NOS. 303 AND 331 RE: REVISE TECHNICAL SPECIFICATION TO ADOPT TSTF-582, “REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL ENHANCEMENTS” (EPID L-2020-LLA-0218) DATED MARCH 4, 2021

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NAME	UShoop	AHon	
DATE	03/04/2021	03/04/2021	

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