



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

January 28, 2021

Mr. John J. Grabnar  
Site Vice President  
Energy Harbor Nuclear Corp.  
Beaver Valley Power Station  
Mail Stop P-BV-SSB  
P.O. Box 4, Route 168  
Shippingport, PA 15077-0004

SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – ISSUANCE OF  
AMENDMENT NOS. 307 AND 197 TO ADD CONTAINMENT SUMP  
TECHNICAL SPECIFICATIONS TO ADDRESS GENERIC SAFETY ISSUE 191  
ISSUES (EPID L-2020-LLA-0154)

Dear Mr. Grabnar:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 307 and 197 to Renewed Facility Operating License Nos. DPR-66 and NPF-73 for the Beaver Valley Power Station, Units 1 and 2, respectively. These amendments consist of changes to the technical specifications (TSs) in response to your application dated July 10, 2020.

The amendments revise TS 3.5.2, "ECCS [Emergency Core Cooling System] - Operating," and TS 3.5.3, "ECCS - Shutdown." The amendments also add new TS 3.6.9, "Containment Sump," to Section 3.6, "Containment Systems." The changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-567, Revision 1, "Add Containment Sump TS to Address GSI [Generic Safety Issue]-191 Issues," with variations.

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/**

Jennifer C. Tobin, Project Manager  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosures:

1. Amendment No. 307 to DPR-66
2. Amendment No. 197 to NPF-73
3. Safety Evaluation

cc: Listserv



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

ENERGY HARBOR NUCLEAR CORP.

ENERGY HARBOR NUCLEAR GENERATION LLC

DOCKET NO. 50-334

BEAVER VALLEY POWER STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 307  
Renewed License No. DPR-66

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Energy Harbor Nuclear Corp., acting on its own behalf and as agent for Energy Harbor Nuclear Generation LLC\* (the licensee), dated July 10, 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.

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\* Energy Harbor Nuclear Corp. is authorized to act as agent for Energy Harbor Nuclear Generation LLC and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

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-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 307, which is attached hereto are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna, Chief  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

Date of Issuance: January 28, 2021



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

ENERGY HARBOR NUCLEAR CORP.  
ENERGY HARBOR NUCLEAR GENERATION LLC  
DOCKET NO. 50-412  
BEAVER VALLEY POWER STATION, UNIT 2  
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 197  
Renewed License No. NPF-73

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Energy Harbor Nuclear Corp., acting on its own behalf and as agent for Energy Harbor Nuclear Generation LLC\* (the licensee), dated July 10, 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.

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\* Energy Harbor Nuclear Corp. is authorized to act as agent for Energy Harbor Nuclear Generation LLC and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

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-73 is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 197, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated in the license. Energy Harbor Nuclear Corp. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna, Chief  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

Date of Issuance: January 28, 2021

ATTACHMENT TO LICENSE AMENDMENT NOS. 307 AND 197

BEAVER VALLEY POWER STATION, UNITS 1 AND 2

RENEWED FACILITY OPERATING LICENSE NOS. DPR-66 AND NPF-73

DOCKET NOS. 50-334 AND 50-412

Replace the following pages of the Renewed Facility Operating Licenses with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Renewed Facility Operating License No. DPR-66

Remove  
Page 3

Insert  
Page 3

Renewed Facility Operating License No. NPF-73

Remove  
Page 4

Insert  
Page 4

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.

Appendix A, Technical Specifications

Remove  
3.5.2 - 3  
3.5.3 - 1  
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Insert  
3.5.2 - 3  
3.5.3 - 1  
3.6.9 - 1  
3.6.9 - 2  
3.6.9 - 3

- (3) Energy Harbor Nuclear Corp., pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
  - (4) Energy Harbor Nuclear Corp., pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess 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;
  - (5) Energy Harbor Nuclear Corp., 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 renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter 1: 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 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  
Energy Harbor Nuclear Corp. is authorized to operate the facility at a steady state reactor core power level of 2900 megawatts thermal.
  - (2) Technical Specifications  
The Technical Specifications contained in Appendix A, as revised through Amendment No. 307, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.
  - (3) Auxiliary River Water System  
(Deleted by Amendment No. 8)



C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations set forth in 10 CFR Chapter 1 and 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

Energy Harbor Nuclear Corp. is authorized to operate the facility at a steady state reactor core power level of 2900 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 197, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated in the license. Energy Harbor Nuclear Corp. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

SURVEILLANCE REQUIREMENTS (continued)		
SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.5	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

APPLICABILITY: MODE 4.

ACTIONS

**- NOTE -**

LCO 3.0.4.b is not applicable to ECCS high head subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS train inoperable.	A.1 Restore required ECCS train to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.3.1 The following SRs are applicable for all equipment required to be OPERABLE: SR 3.5.2.1 SR 3.5.2.4 SR 3.5.2.2	In accordance with applicable SRs

3.6 CONTAINMENT SYSTEMS

3.6.9 Containment Sump

LCO 3.6.9 The containment sump shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Containment sump inoperable due to containment accident generated and transported debris exceeding the analyzed limits.</p>	<p>A.1 Initiate action to mitigate containment accident generated and transported debris.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2 Perform SR 3.4.13.1</p>	<p>Once per 24 hours</p>
	<p><u>AND</u></p>	
	<p>A.3 Restore the containment sump to OPERABLE status.</p>	<p>90 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Containment sump inoperable for reasons other than Condition A.</p>	<p>B.1 -----  <b>- NOTES -</b>            1. Enter applicable Conditions and Required Actions of LCO 3.5.2, "ECCS – Operating," and LCO 3.5.3, "ECCS – Shutdown," for emergency core cooling trains made inoperable by the containment sump.             2. Enter applicable Conditions and Required Actions of LCO 3.6.7, "Recirculation Spray," for recirculation spray trains made inoperable by the containment sump.            -----            Restore the containment sump to OPERABLE status.</p>	<p>72 hours</p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 Be in MODE 3.   <u>AND</u>             C.2 Be in MODE 5.</p>	<p>6 hours                36 hours</p>

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Verify, by visual inspection, the containment sump does not show structural damage, abnormal corrosion, or debris blockage.	In accordance with the Surveillance Frequency Control Program



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 307 AND 197 TO

RENEWED FACILITY OPERATING LICENSE NOS. DPR-66 AND NPF-73

ENERGY HARBOR NUCLEAR CORP.

BEAVER VALLEY POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-334 AND 50-412

1.0 INTRODUCTION

By application dated July 10, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20192A210), Energy Harbor Nuclear Corp. (the licensee) submitted a license amendment request (LAR) for Beaver Valley Power Station, Units 1 and 2 (Beaver Valley).

The amendments would revise Technical Specification (TS) 3.5.2, "ECCS [Emergency Core Cooling System] - Operating," and TS 3.5.3, "ECCS - Shutdown." The amendments would also add new TS 3.6.9, "Containment Sump," to Section 3.6, "Containment Systems." The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-567, Revision 1, "Add Containment Sump TS to Address GSI [Generic Safety Issue]-191 Issues," dated August 2, 2017 (ADAMS Accession No. ML17214A813). The U.S. Nuclear Regulatory Commission (NRC, the Commission) issued a final safety evaluation (SE) approving TSTF-567, Revision 1, on July 3, 2018 (ADAMS Accession No. ML18116A606).

The licensee proposed several variations from the TS changes described in TSTF-567. The variations are described in Section 2.2.4 of this SE and evaluated in Section 3.4.

2.0 REGULATORY EVALUATION

2.1 System Description

TSs include limiting conditions for operation (LCOs), which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Specified with each stated condition of the LCO are required action(s) and completion time(s) (CTs) to meet TS requirements.

### 2.1.1 TS 3.5.2, "ECCS - Operating"

The function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core is protected after any of the following accidents:

- a. Loss-of-coolant accident (LOCA) coolant leakage greater than the capability of the normal charging system,
- b. Rod ejection accident,
- c. Loss of secondary coolant accident, including uncontrolled steam release or loss of feedwater, or
- d. Steam generator tube rupture.

TS 3.5.2 is applicable in Modes 1, 2, and 3 and requires that two independent ECCS trains be operable to ensure that sufficient ECCS flow is available, assuming a single failure affecting either train.

TS 3.5.2 helps ensure that the following acceptance criteria for ECCS established by Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46 will be met following a LOCA:

- a. Maximum fuel element cladding temperature is  $\leq 2,200$  degrees Fahrenheit ( $^{\circ}\text{F}$ ),
- b. Maximum cladding oxidation is  $\leq 0.17$  times the total cladding thickness before oxidation,
- c. Maximum hydrogen generation from a zirconium water reaction is  $\leq 0.01$  times the hypothetical amount generated if all of the metal in the cladding cylinders surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react,
- d. Core is maintained in a coolable geometry, and
- e. Adequate long-term core cooling capability is maintained.

TS 3.5.2 also limits the potential for a post-trip return to power following a main steam line break event and ensures that containment temperature limits are met.

### 2.1.2 TS 3.5.3, "ECCS - Shutdown"

TS 3.5.3 is applicable in Mode 4 and requires one of the two independent (and redundant) ECCS trains to be operable to ensure that sufficient ECCS flow is available to the core following a design-basis accident.

## 2.2 Proposed Changes to the TSs

The proposed changes would revise TS 3.5.2 and TS 3.5.3. The proposed changes would also add a new TS 3.6.9, "Containment Sump," to Section 3.6, "Containment Systems." The proposed changes are described below.



### 2.2.1 Proposed Changes to TS 3.5.2, "ECCS - Operating"

TS 3.5.2 currently contains Surveillance Requirement (SR) 3.5.2.7, which requires the following at a frequency in accordance with the surveillance frequency control program:

Verify, by visual inspection, that accessible regions of the ECCS containment sump suction inlet are not restricted by debris and that the accessible regions of the strainers show no evidence of structural distress or abnormal corrosion.

The licensee proposed to modify and move SR 3.5.2.7 from TS 3.5.2 to the proposed new containment sump TS 3.6.9.

This change is evaluated in Section 3.1 of this SE.

### 2.2.2 Proposed Changes to TS 3.5.3, "ECCS - Shutdown"

TS 3.5.3 currently contains SR 3.5.3.1, which refers to applicable SRs under TS 3.5.2. One of those referenced SRs is SR 3.5.2.7, described in Section 2.2.1 of this SE.

Because the licensee proposed to modify and move SR 3.5.2.7 from TS 3.5.2 to the proposed new containment sump TS 3.6.9, the licensee also proposed to delete the reference to SR 3.5.2.7 in SR 3.5.3.1.

This change is evaluated in Section 3.2 of this SE.

### 2.2.3 Proposed Addition of a New Containment Sump TS

The licensee proposed to add TS 3.6.9 requiring the containment sump to be operable during Modes 1, 2, 3, and 4. Proposed Condition A would specify that if the containment sump is inoperable due to containment accident generated and transported debris exceeding the analyzed limits, then the licensee is required to: (1) initiate action to mitigate containment accident generated and transported debris immediately, (2) perform SR 3.4.13.1 once per 24 hours, and (3) restore the containment sump to operable status within 90 days (proposed Required Actions A.1, A.2, and A.3, respectively). TS 3.4.13, "RCS [Reactor Coolant System] Operational LEAKAGE," currently contains SR 3.4.13.1, which requires verification that the RCS operational leakage is within limits by performance of an RCS water inventory balance.

Proposed Condition B would specify that if the containment sump is inoperable for reasons other than Condition A, then the licensee is required to restore the containment sump to operable status within 72 hours (proposed Required Action B.1). Proposed Required Action B.1 would be modified by two notes that direct entering the applicable conditions and required actions of TS 3.5.2 and TS 3.5.3 for ECCS trains made inoperable by the containment sump and entering the applicable conditions and required actions of TS 3.6.7, "Recirculation Spray (RS) System," for RS system trains made inoperable by the containment sump.

Proposed Condition C would specify that if required actions and associated CTs under Conditions A and B are not met, then the licensee is required to be in Mode 3 in 6 hours and in Mode 5 in 36 hours (proposed Required Actions C.1 and C.2, respectively).

The licensee also proposed to modify and move SR 3.5.2.7 from TS 3.5.2 to the proposed new containment sump TS 3.6.9 as SR 3.6.9.1. SR 3.6.9.1 would require the licensee to verify, by visual inspection, the containment sump does not show structural damage, abnormal corrosion, or debris blockage at a frequency in accordance with the surveillance frequency control program.

This change is evaluated in Section 3.3 of this SE.

#### 2.2.4 Variations from TSTF-567, Revision 1

Beaver Valley TSs use different numbering than the Standard Technical Specifications on which TSTF-567 was based. Specifically, TSTF-567 identifies the new containment sump TS as 3.6.19, whereas, for Beaver Valley, this TS would be numbered 3.6.9. TSTF-567 also identifies SR 3.5.2.8 as the SR to be removed from TS 3.5.2 and from the list of applicable SRs in SR 3.5.3.1, whereas, for Beaver Valley, SR 3.5.2.7 would be the SR removed from TS 3.5.2 and from the list of applicable SRs in SR 3.5.3.1. Finally, TSTF-567 identifies TS 3.6.6 in the second note of Required Action B.1 in the containment sump TS, whereas, for Beaver Valley, TS 3.6.7 would be referenced instead.

The licensee also proposed a change to TS 3.5.2 to correct an issue introduced in a previous revision. Specifically, the licensee proposed to add the column headings "SURVEILLANCE" and "FREQUENCY" to the table on TS page 3.5.2-3.

The Beaver Valley TSs contain a surveillance frequency control program. Therefore, the frequency for SR 3.6.9.1 is proposed to be "In accordance with the Surveillance Frequency Control Program."

These variations are evaluated in Section 3.4 of this SE.

### 2.3 Applicable Regulatory Requirements and Guidance

#### 2.3.1 TS Requirements

Section 50.36(a)(1) of 10 CFR requires each applicant for a license authorizing operation of a utilization facility to include in the application proposed TSs. That regulation also states, in part, that "A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications."

The regulation at 10 CFR 50.36(b) requires:

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

The categories of items required to be in the TSs are provided in 10 CFR 50.36(c). As required by 10 CFR 50.36(c)(2)(i), the TSs will include LCOs, which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. The regulation at

10 CFR 50.36(c)(2)(i) 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 TSs until the LCO can be met.

The regulation at 10 CFR 50.36(c)(3) requires TSs to include 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.

### 2.3.2 Guidance

The guidance that the NRC staff considered in its review of this LAR included the following:

- NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition," Chapter 16.0, "Technical Specifications," dated March 2010 (ADAMS Accession No. ML100351425), provides guidance on review of TSs.
- U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, Westinghouse Plants," NUREG-1431, Volume 1, "Specifications," and Volume 2, "Bases," Revision 4.0, dated April 2012 (ADAMS Accession Nos. ML12100A222 and ML12100A228, respectively).

## 3.0 TECHNICAL EVALUATION

### 3.1 Proposed Changes to TS 3.5.2, "ECCS - Operating"

The licensee proposed to modify and move SR 3.5.2.7 from TS 3.5.2 to the proposed new containment sump TS 3.6.9. Therefore, the licensee proposed deletion of SR 3.5.2.7.

The proposed new SR 3.6.9.1 does not limit the visual inspection to the suction inlet and strainers as currently required by the TSs, but instead requires inspection of the entire containment sump system. The containment sump system consists of the containment drainage flow paths, the containment sump strainers, and the inlet to the ECCS and RS system piping.

The NRC staff concludes that the proposed change is acceptable because the existing requirements are either unchanged or expanded and continue to ensure that the containment sump is unrestricted (i.e., unobstructed) and stays in proper operating condition. The proposed change meets the requirements of 10 CFR 50.36(c)(3) because it provides an SR 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.

### 3.2 Proposed Changes to TS 3.5.3, "ECCS - Shutdown"

The licensee proposed to delete the reference to SR 3.5.2.7 in SR 3.5.3.1.

The NRC staff concludes that the proposed change is acceptable because SR 3.5.2.7 would be modified and moved to the proposed new containment sump TS. The existing SR on the containment sump would be augmented (by requiring inspection of additional sump components) and moved to the new TS, and a duplicative requirement to perform the SR in

TS 3.5.3 would be removed. The new TS retains or expands the existing requirements on the containment sump and the actions to be taken when the containment sump is inoperable, with the exception of adding new actions to be taken when the containment sump is inoperable due to containment accident generated and transported debris exceeding the analyzed limits. The new TS provides time to evaluate and correct the condition instead of requiring an immediate plant shutdown. The proposed change meets the requirements of 10 CFR 50.36(c)(3) because it provides SRs 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.

### 3.3 Proposed Addition of Containment Sump TS

#### 3.3.1 Evaluation of the New TS

The licensee proposed to add a new TS to address operability requirements of the containment sump. The numbering for this new TS is TS 3.6.9.

The containment sump supports the post-accident operation of the ECCS and RS system. However, only the current ECCS TSs contain SRs related to the containment sump and the TSs do not specify required actions that specifically address an inoperable containment sump. If the containment sump were found to be inoperable as an ECCS and RS system support system, those respective LCOs would not be met. In order to address concerns related to containment sump operability due to debris accumulation described in GSI-191, "Assessment of Debris Accumulation on Pressurized-Water Reactor Sump Performance," the licensee proposed to add a new TS to address containment sump inoperability and to create a condition for when the sump is inoperable due to analyzed containment accident generated and transported debris.

Based on the evaluation below, the NRC staff determined that the proposed new TS satisfies the requirements of 10 CFR 50.36(c)(2)(i) because the LCO specifies the lowest functional capability or performance levels of equipment required for safe operation of the facility. There is reasonable assurance that the required actions to be taken when the LCO is not met can be conducted without endangering the health and safety of the public.

#### 3.3.2 Evaluation of the Applicability

The proposed new TS would require the containment sump to be operable during Modes 1, 2, 3, and 4. The ECCS and RS system TSs are currently applicable during Modes 1, 2, 3, and 4.

The NRC staff finds that the proposed applicability is acceptable because the applicability is consistent with the current applicability of the ECCS and RS system TSs—the containment sump supported systems.

#### 3.3.3 Evaluation of Condition A

The licensee has analyzed the susceptibility of the ECCS and RS system to the adverse effects of post-accident debris blockage and operation with debris-laden fluids. The licensee has established limits on the allowable quantities of containment accident generated debris that could be transported to the containment sump based on its current plant configuration. In the current TSs, if unanalyzed debris sources are discovered inside containment, if errors are discovered in debris-related analyses, or if a previously unevaluated phenomenon that can affect containment sump performance is discovered, the containment sump and the supported

ECCS and RS system may be inoperable, and the TSs would require a plant shutdown with no time provided to evaluate the condition.

In order to address this situation and to provide sufficient time to evaluate the condition, the licensee proposed Condition A, which is applicable when the containment sump is inoperable due to containment accident generated and transported debris exceeding the analyzed limits. Under proposed Condition A, the operability of the containment sump with respect to debris is based on a quantity of debris evaluated and determined to be acceptable by the licensee. Conditions not evaluated under Condition A (containment accident generated and transported debris) and that affect the quantity of analyzed debris will be evaluated using a deterministic process.

Under proposed Condition A, Required Action A.1 would mandate that immediate action be initiated to mitigate the condition. The licensee's proposed TS bases for Required Action A.1 would provide the following examples of mitigating actions:

- Removing the debris source from containment or preventing the debris from being transported to the containment sump;
- Evaluating the debris source against the assumptions in the analysis;
- Deferring maintenance that would affect availability of the affected systems and other LOCA mitigating equipment;
- Deferring maintenance that would affect availability of primary defense-in-depth systems, such as containment coolers;
- Briefing operators on LOCA debris management actions; or
- Applying an alternative method to establish new limits.

The NRC staff finds that the proposed Required Action A.1 and its CT are acceptable because they place urgency on the initiation of the appropriate actions that could mitigate or reduce the impact of the identified conditions.

Concurrently, proposed Required Action A.2 would mandate that SR 3.4.13.1, the RCS water inventory balance, be performed at an increased frequency of once per 24 hours. An unexpected increase in RCS leakage could be indicative of an increased potential for an RCS pipe break, which could result in debris being generated and transported to the containment sump.

The NRC staff finds that the proposed Required Action A.2 and its CT are acceptable because the more frequent monitoring allows operators to act in a timely fashion to minimize the potential for an RCS pipe break while the containment sump is inoperable.

In addition, proposed Required Action A.3 would require that the inoperable containment sump be restored to operable status in 90 days.

The NRC staff finds that the proposed Required Action A.3 and its CT are acceptable because they provide a reasonable amount of time to diagnose, plan, and possibly reduce the severity of

or mitigate the unanalyzed debris condition and prevent a loss of ECCS and RS system safety function. In addition, 90 days is adequate given the conservatism in the containment debris analysis and the proposed compensatory actions required to be implemented immediately by proposed Required Action A.1. Also, as discussed later in this SE section, the proposed new SR would require visual inspection of the containment sump system (including the containment drainage flow paths, the containment sump strainers, and the inlet to the ECCS and RS system piping for evidence of structural degradation, potential for debris bypass, and presence of corrosion or debris blockage) to ensure that no loose debris and no evidence of structural distress or abnormal corrosion is present.

#### 3.3.4 Evaluation of Condition B

Proposed Condition B would specify the required actions for when the containment sump is inoperable for reasons other than containment accident generated and transported debris exceeding the analyzed limits.

Proposed Required Action B.1 would require restoring the containment sump to operable status and would be modified by two notes. These two notes direct entry into the conditions and required actions for the supported systems (i.e., ECCS and RS system) upon entering Required Action B.1. Since Required Action B.1 directs entry to the corresponding ECCS and RS system TSs, these notes retain the existing TS actions for ECCS or RS system trains made inoperable by an inoperable containment sump for reasons other than containment accident generated and transported debris exceeding the analyzed limits.

The proposed CT for Required Action B.1 is 72 hours. This CT is consistent with the CT for one or more ECCS trains inoperable and two RS system trains inoperable. This is acceptable because ECCS and RS system TS actions will control the licensee's response under this condition.

The NRC staff finds that the proposed change is acceptable because it continues to provide remedial actions for when the containment sump is inoperable for reasons other than Condition A and ensures safe operation of the plant. In addition, the proposed CT is acceptable because it provides a reasonable time for repairs, and there is a low probability of an accident occurring during this period that would require the use of the containment sump.

#### 3.3.5 Evaluation of Condition C

If operators are unable to restore the affected containment sump to operable status under Conditions A or B, proposed Condition C, Required Action C.1 would require the unit to be in Mode 3 in 6 hours and Required Action C.2 would require the unit to be in Mode 5 in 36 hours.

The NRC staff finds that this proposed condition and its required actions are acceptable because the condition is consistent with the Standard Technical Specifications, and the required actions require the operators to place the unit in a condition in which the LCO no longer applies. In addition, the proposed CTs allow a reasonable amount of time to decrease from full power conditions to the required plant conditions in an orderly manner and without challenging plant systems.

### 3.3.6 Evaluation of the New SR

The licensee proposed a new SR in the proposed new containment sump TS 3.6.9. This SR is currently located in TS 3.5.2 and referred to in TS 3.5.3. The numbering for this new SR would be SR 3.6.9.1. The frequency of the new SR would be in accordance with the surveillance frequency control program.

The proposed new SR would require verification, by visual inspection, that the containment sump does not show structural damage, abnormal corrosion, or debris blockage.

The proposed new SR is stated in generic terms and expands the scope of the required visual inspection to include the entire containment sump system. The entire containment sump system consists of the containment drainage flow paths, the containment sump strainers, and the inlet to the ECCS and RS system piping.

The NRC staff finds that the proposed new SR is acceptable because it expands the scope of inspection of the original SR. In addition, the proposed frequency is acceptable because it is the same as that currently required by the TSs. Therefore, the NRC staff finds that, as required by 10 CFR 50.36(c)(3), the necessary quality of systems and components is maintained, facility operation will be within safety limits, and the LCOs will be met.

### 3.3.7 Evaluation of Changes to the TS Bases

The licensee submitted TS bases changes (that corresponded to the proposed TS changes) to provide the reasons for the proposed TSs. The licensee stated that the TS bases changes are consistent with the bases changes in the model application.

### 3.3.8 Conclusion Regarding Proposed Containment Sump TS

The proposed new containment sump TS retains and expands the existing TS requirements with the exception of the addition of Condition A. Condition A provides a condition for an inoperable containment sump due to containment accident generated and transported debris exceeding the analyzed limits.

The NRC staff reviewed the proposed changes against the regulations and concludes that the changes continue to meet the requirements of 10 CFR 50.36(c)(2)(i) and 10 CFR 50.36(c)(3) for the reasons discussed above and, thus, provide reasonable assurance that adoption of these TSs will have the requisite requirements and controls to operate safely. Therefore, the NRC staff concludes that the proposed TS changes are acceptable.

### 3.4 Variations

The numbering differences discussed in Section 2.2.4 of this SE do not affect the applicability of TSTF-567 or the NRC staff's SE of TSTF-567 to the LAR. In addition, the proposed change to correct the omission of the column headings of the table on TS page 3.5.2-3 is an editorial clarification and does not substantively change TS requirements. Finally, the use of the frequency "In accordance with the Surveillance Frequency Control Program" is consistent with the current TSs. For these reasons, these variations are acceptable.

### 3.5 Technical Evaluation Conclusion

The NRC staff determined that the proposed TS changes meet the standards for TSs in 10 CFR 50.36. As required by 10 CFR 50.36(c)(2)(i), the LCOs specify the lowest functional capability or performance levels of equipment required for safe operation of the facility. As required by 10 CFR 50.36(c)(3), the SRs 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. Therefore, the NRC staff concludes that the proposed TS changes are 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 15, 2020. 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 and 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 (85 FR 52373; August 25, 2020). 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: C. Tilton

Date: January 28, 2021



SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – ISSUANCE OF AMENDMENT NOS. 307 AND 197 TO ADD CONTAINMENT SUMP TECHNICAL SPECIFICATIONS TO ADDRESS GENERIC SAFETY ISSUE 191 ISSUES (EPID L-2020-LLA-0154) DATED JANUARY 28, 2021

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