



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

June 20, 2019

Mr. Bradley J. Sawatzke
Chief Executive Officer
Energy Northwest
76 North Power Plant Loop
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352

SUBJECT: COLUMBIA GENERATING STATION - ISSUANCE OF AMENDMENT NO. 253
RE: RENEWED FACILITY OPERATING LICENSE AND TECHNICAL
SPECIFICATION CLEAN UP (EPID L-2018-LLA-0176)

Dear Mr. Sawatzke:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 253 to Renewed Facility Operating License No. NPF-21 for the Columbia Generating Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated June 12, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18163A351), as supplemented by letter dated August 7, 2018 (ADAMS Accession No. ML18219C797).

The amendment revises the Columbia renewed facility operating license and technical specifications, including editorial changes and the removal of obsolete information.

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

Sincerely,

A handwritten signature in black ink, appearing to read "L. John Klos".

L. John Klos, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Amendment No. 253 to NPF-21
2. Safety Evaluation

cc: Listserv



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

ENERGY NORTHWEST

DOCKET NO. 50-397

COLUMBIA GENERATING STATION

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 253
License No. NPF-21

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Energy Northwest (licensee), dated June 12, 2018, as supplemented by letter dated August 7, 2018, 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. NPF-21 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 253 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert J. Pascarelli, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-21
and Technical Specifications

Date of Issuance: June 20, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 253
RENEWED FACILITY OPERATING LICENSE NO. NPF-21

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

Replace the following pages of the Renewed Facility Operating License No. NPF-21 and Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Renewed Facility Operating License

<u>REMOVE</u>	<u>INSERT</u>
-4-	-4-
-7-	-7-
Attachment 1	---
Attachment 2	---

Technical Specification

<u>REMOVE</u>	<u>INSERT</u>
i	---
ii	---
iii	---
iv	---
1.1-5	1.1-5
3.1.6-2	3.1.6-2
3.2.4-1	---
3.2.4-2	---
3.3.1.1-1 through 3.3.1.1-18 ¹	3.3.1.1-1 through 3.3.1.1-10 ²
3.3.1.3-1	---
3.3.1.3-2	---
3.3.2.1-1 through 3.3.2.1-13 ¹	3.3.2.1-1 through 3.3.2.1-7 ²
3.3.6.1-4	3.3.6.1-4
3.3.6.1-7	3.3.6.1-7
3.3.6.1-8	3.3.6.1-8
3.3.6.1-9	3.3.6.1-9
3.3.8.1-3	3.3.8.1-3
3.4.1-1 through 3.4.1-4 ¹	3.4.1-1 through 3.4.1-2 ²
3.5.1-1	3.5.1-1
3.10.8-1 through 3.10.8-7 ¹	3.10.8-1 through 3.10.8-3 ²
5.5-3	5.5-3
5.6-2	5.6-2

¹ Prior to Implementation of Power Range Neutron Monitor (PRNM) Upgrade

² After Implementation of PRNM Upgrade

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 253 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

- a. For Surveillance Requirements (SRs) not previously performed by existing SRs or other plant tests, the requirement will be considered met on the implementation date and the next required test will be at the interval specified in the Technical Specifications as revised in Amendment No. 149.

(3) Deleted.

(4) Deleted.

(5) Deleted.

(6) Deleted.

(7) Deleted.

(8) Deleted.

(9) Deleted.

(10) Deleted.

(11) Shield Wall Deferral (Section 12.3.2, SSER #4, License Amendment #7)

The licensee shall complete construction of the deferred shield walls and window as identified in Attachment 3, as amended by this license amendment.

(12) Deleted.

(13) Deleted.

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

(33) Deleted

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1.1 Definitions

LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE - OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: <ul style="list-style-type: none">a. Described in Chapter 14, Initial Test Program of the FSAR;b. Authorized under the provisions of 10 CFR 50.59; or

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.6.1 Verify all OPERABLE control rods comply with BPWS.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1

ACTIONS

NOTE

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours
	<p><u>OR</u></p> <p>-----NOTE----- Not applicable for Functions 2.a, 2.b, 2.c, 2.d, or 2.f. -----</p>	
<p>-----NOTE----- Not applicable for Functions 2.a, 2.b, 2.c, 2.d, or 2.f. -----</p>	A.2 Place associated trip system in trip.	12 hours
	B.1 Place channel in one trip system in trip.	6 hours
B. One or more Functions with one or more required channels inoperable in both trip systems.	<u>OR</u>	
	B.2 Place one trip system in trip.	6 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < 29.5% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate alternate method to detect and suppress thermal hydraulic instability oscillations.	12 hours
	<p><u>AND</u></p> <p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p>	
	I.2 Restore required channels to OPERABLE.	120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1 Reduce THERMAL POWER to less than the value specified in the COLR.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.

SURVEILLANCE	FREQUENCY
SR 3.3.1.1.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.2	<p>-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER \geq 25% RTP.</p> <hr/> <p>Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power \leq 2% RTP while operating at \geq 25% RTP.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	<p>-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.</p> <hr/> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.4	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.5	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
SR 3.3.1.1.6	<p>-----NOTE----- Only required to be met during entry into MODE 2 from MODE 1.</p> <hr/> <p>Verify the IRM and APRM channels overlap.</p>	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.7	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.9	Deleted.	
SR 3.3.1.1.10	<p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Functions 2.b and 2.f, the recirculation flow transmitters that feed the APRMs are included. <p style="text-align: center;">-----</p> <p>Perform CHANNEL CALIBRATION.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	Deleted.	
SR 3.3.1.1.12	Verify Turbine Throttle Valve - Closure, and Turbine Governor Valve Fast Closure Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is \geq 29.5% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.13	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.1.14 Perform LOGIC SYSTEM FUNCTIONAL TEST.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.1.15 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Neutron detectors are excluded. 2. Channel sensors for Functions 3 and 4 are excluded. <p>-----</p> <p>Verify the RPS RESPONSE TIME is within limits.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.1.16 -----NOTES-----</p> <ol style="list-style-type: none"> 1. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 2. For Functions 2.b and 2.f, the CHANNEL FUNCTIONAL TEST includes the recirculation flow input processing, excluding the flow transmitters. <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.1.17 Verify the OPRM is not bypassed when APRM Simulated Thermal Power is greater than or equal to the value specified in the COLR and recirculation drive flow is less than the value specified in the COLR.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

Table 3.3.1.1-1 (page 1 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux - High	2	3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 122/125 divisions of full scale
	5 ^(a)	3	H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 122/125 divisions of full scale
b. Inop	2	3	G	SR 3.3.1.1.3 SR 3.3.1.1.14	NA
	5 ^(a)	3	H	SR 3.3.1.1.4 SR 3.3.1.1.14	NA
2. Average Power Range Monitors					
a. Neutron Flux - High (Setdown)	2	3 ^(b)	G	SR 3.3.1.1.1 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.10 ^{(d),(e)} SR 3.3.1.1.16	≤ 20% RTP
b. Simulated Thermal Power - High	1	3 ^(b)	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.10 ^{(d),(e)} SR 3.3.1.1.16	≤ 0.62W + 62.9% RTP and ≤ 114.9% RTP ^(c)

- (a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.
- (b) Each APRM/OPRM channel provides inputs to both trip systems.
- (c) ≤ 0.62W + 59.8% RTP and ≤ 114.9% RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."
- (d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in the Licensee Controlled Specifications.

Table 3.3.1.1-1 (page 2 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors					
c. Neutron Flux - High	1	3 ^(b)	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.10 ^{(d),(e)} SR 3.3.1.1.16	≤ 120% RTP
d. Inop	1,2	3 ^(b)	G	SR 3.3.1.1.16	NA
e. 2-Out-of-4 Voter	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.14 SR 3.3.1.1.15 SR 3.3.1.1.16	NA
f. OPRM Upscale	(f)	3 ^(b)	I	SR 3.3.1.1.1 SR 3.3.1.1.7 SR 3.3.1.1.10 ^{(d),(e)} SR 3.3.1.1.16 SR 3.3.1.1.17	NA ^(g)

(b) Each APRM/OPRM channel provides inputs to both trip systems.

(d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in the Licensee Controlled Specifications.

(f) THERMAL POWER greater than or equal to the value specified in the COLR.

(g) The OPRM Upscale does not have an Allowable Value. The Period Based Detection Algorithm (PBDA) trip setpoints are specified in the COLR.

Table 3.3.1.1-1 (page 3 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 1079 psig
4. Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 9.5 inches
5. Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 12.5% closed
6. Primary Containment Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 1.88 psig
7. Scram Discharge Volume Water Level - High					
a. Transmitter/Level Indicating Switch	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	5 ^(a)	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
b. Transmitter/Level Switch	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 ^{(d)(e)} SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	5 ^(a)	2	H	SR 3.3.1.1.8 SR 3.3.1.1.10 ^{(d)(e)} SR 3.3.1.1.14	≤ 529 ft 9 inches elevation

- (a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.
- (d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and the as-left tolerances are specified in the Licensee Controlled Specifications.

Table 3.3.1.1-1 (page 4 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. Turbine Throttle Valve - Closure	≥ 29.5% RTP	4	E	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 7% closed
9. Turbine Governor Valve Fast Closure, Trip Oil Pressure - Low	≥ 29.5% RTP	2	E	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 1000 psig
10. Reactor Mode Switch - Shutdown Position	1,2	2	G	SR 3.3.1.1.13 SR 3.3.1.1.14	NA
	5 ^(a)	2	H	SR 3.3.1.1.13 SR 3.3.1.1.14	NA
11. Manual Scram	1,2	2	G	SR 3.3.1.1.4 SR 3.3.1.1.14	NA
	5 ^(a)	2	H	SR 3.3.1.1.4 SR 3.3.1.1.14	NA

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1 Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two RBM channels inoperable.	B.1 Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1 Suspend control rod movement except by scram. <u>OR</u> C.2.1.1 Verify ≥ 12 rods withdrawn. <u>OR</u>	Immediately Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	<p>C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year.</p> <p><u>AND</u></p> <p>C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.</p>	<p>Immediately</p> <p>During control rod movement</p>
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement
E. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	<p>E.1 Suspend control rod withdrawal.</p> <p><u>AND</u></p> <p>E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.2.1-1 to determine which SRs apply for each Control Rod Block Function.
2. When an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.2	<p>-----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn at $\leq 10\%$ RTP in MODE 2. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.3	<p>-----NOTE----- Not required to be performed until 1 hour after THERMAL POWER is $\leq 10\%$ RTP in MODE 1. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.1.4</p> <p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Verify the RBM is not bypassed:</p> <ul style="list-style-type: none"> a. Low Power Range - Upscale Function is not bypassed when APRM Simulated Thermal Power is $\geq 28\%$ and $< 63\%$ RTP and peripheral control rod is not selected. b. Intermediate Power Range - Upscale Function is not bypassed when APRM Simulated Thermal Power is $\geq 63\%$ and $< 83\%$ RTP and peripheral control rod is not selected. c. High Power Range - Upscale Function is not bypassed when APRM Simulated Thermal Power is $\geq 83\%$ and peripheral control rod is not selected. 	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.2.1.5</p> <p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.2.1.6</p> <p>Verify the RWM is not bypassed when THERMAL POWER is $\leq 10\%$ RTP.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.1.7</p> <p>-----NOTE----- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.2.1.8</p> <p>Verify control rod sequences input to the RWM are in conformance with BPWS.</p>	<p>Prior to declaring RWM OPERABLE following loading of sequence into RWM</p>

Table 3.3.2.1-1 (page 1 of 2)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range – Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5 ^{(d),(e)}	(f)
b. Intermediate Power Range – Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5 ^{(d),(e)}	(f)
c. High Power Range – Upscale	(c)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5 ^{(d),(e)}	(f)
d. Inop	(a),(b),(c)	2	SR 3.3.2.1.1	NA

- (a) APRM Simulated Thermal Power is $\geq 28\%$ and $< 63\%$ RTP and MCPR is less than the limit specified in the COLR and no peripheral control rod selected.
- (b) APRM Simulated Thermal Power is $\geq 63\%$ and $< 83\%$ RTP and MCPR is less than the limit specified in the COLR and no peripheral control rod selected.
- (c) APRM Simulated Thermal Power is $\geq 83\%$ and MCPR is less than the limit specified in the COLR and no peripheral control rod selected.
- (d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in the Licensee Controlled Specifications.
- (f) Allowable Value Specified in the COLR.

Table 3.3.2.1-1 (page 2 of 2)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Rod Worth Minimizer	1 ^(g) , 2 ^(g)	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.6 SR 3.3.2.1.8	NA
3. Reactor Mode Switch - Shutdown Position	(h)	2	SR 3.3.2.1.7	NA

(g) With THERMAL POWER \leq 10% RTP.

(h) Reactor mode switch in the shutdown position.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.7	<p>-----NOTE----- Channel sensors for Functions 1.a, 1.b, and 1.c are excluded. -----</p> <p>Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.</p>	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.1-1 (page 3 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation					
e. RCIC Equipment Room Area Temperature - High	1, 2, 3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 180°F
f. RCIC Equipment Room Area Differential Temperature - High	1, 2, 3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 60°F
g. Reactor Water Cleanup (RWCU) System /RCIC Steam Line Routing Area Temperature - High	1, 2, 3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 180°F
h. Manual Initiation	1, 2, 3	1 ^(b)	G	SR 3.3.6.1.6	NA
4. RWCU System Isolation					
a. Differential Flow - High	1, 2, 3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 67.4 gpm
b. Differential Flow - Time Delay	1, 2, 3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 46.5 seconds
c. Blowdown Flow - High	1, 2, 3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 271.7 gpm
d. Heat Exchanger Room Area Temperature - High	1, 2, 3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 160°F

(b) RCIC Manual Initiation only inputs into one of the two trip systems.

Table 3.3.6.1-1 (page 4 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RWCU System Isolation					
e. Heat Exchanger Room Area Ventilation Differential Temperature - High	1, 2, 3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 70°F
f. Pump Room Area Temperature - High	1, 2, 3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 180°F
g. Pump Room Area Ventilation Differential Temperature - High	1, 2, 3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 100°F
h. RWCU/RCIC Line Routing Area Temperature - High	1, 2, 3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 180°F
i. RWCU Line Routing Area Temperature - High	1, 2, 3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	
Room 409, 509 Areas					≤ 175°F
Room 408, 511 Areas					≤ 180°F
j. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ -58 inches
k. Standby Liquid Control (SLC) System Initiation	1, 2, 3	2 ^(c)	I	SR 3.3.6.1.6	NA
l. Manual Initiation	1, 2, 3	2	G	SR 3.3.6.1.6	NA

(c) SLC System Initiation only inputs into one of the two trip systems.

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Residual Heat Removal (RHR) Shutdown Cooling (SDC) System Isolation					
a. Pump Room Area Temperature - High	3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 150°F
b. Pump Room Area Ventilation Differential Temperature - High	3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 70°F
c. Heat Exchanger Area Temperature - High	3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.6	
Room 505 Area					≤ 140°F
Room 507 Area					≤ 160°F
Room 605 Area					≤ 150°F
Room 606 Area					≤ 140°F
d. Reactor Vessel Water Level - Low, Level 3	3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 9.5 inches
e. Reactor Vessel Pressure - High	1, 2, 3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 135 psig
f. Manual Initiation	1, 2, 3	2	G	SR 3.3.6.1.6	NA

(d) Deleted

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.2	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 Recirculation Loops Operating

LCO 3.4.1 Two recirculation loops with matched flows shall be in operation.

OR

One recirculation loop shall be in operation provided that the following limits are applied when the associated LCO is applicable:

- a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits specified in the COLR;
- b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," single loop operation limits specified in the COLR; and
- c. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," Function 2.b (Average Power Range Monitors, Simulated Thermal Power - High), Allowable Value of Table 3.3.1.1-1 is reset for single loop operation.

APPLICABILITY: MODES 1 and 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Recirculation loop flow mismatch not within limits.	A.1 Declare the recirculation loop with lower flow to be "not in operation."	2 hours
B. Requirements of the LCO not met for reasons other than Condition A.	B.1 Satisfy the requirements of the LCO.	4 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p> <p><u>OR</u></p> <p>No recirculation loops in operation.</p>	<p>C.1 Be in MODE 3.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.1.1</p> <p style="text-align: center;">-----NOTE-----</p> <p>Not required to be performed until 24 hours after both recirculation loops are in operation.</p> <p>-----</p> <p>Verify recirculation loop drive flow mismatch with both recirculation loops in operation is:</p> <p>a. $\leq 10\%$ of rated recirculation loop drive flow when operating at $< 70\%$ of rated core flow; and</p> <p>b. $\leq 5\%$ of rated recirculation loop drive flow when operating at $\geq 70\%$ of rated core flow.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

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

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1, MODES 2 and 3, except ADS valves are not required to be OPERABLE with reactor steam dome pressure \leq 150 psig.

ACTIONS

NOTE

LCO 3.0.4.b is not applicable to High Pressure Core Spray (HPCS).

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days ⁽¹⁾
B High Pressure Core Spray (HPCS) System inoperable.	B.1 Verify by administrative means RCIC System is OPERABLE when RCIC System is required to be OPERABLE.	Immediately
	<u>AND</u> B.2 Restore HPCS System to OPERABLE status.	14 days

⁽¹⁾ The Completion Time that one train of RHR (RHR-A) can be inoperable as specified by Required Action A.1 may be extended beyond the 7 day completion time up to 7 days to support restoration of RHR-A following pump and motor replacement. This footnote will expire at 23:59 PST February 28, 2019.

3.10 SPECIAL OPERATIONS

3.10.8 SHUTDOWN MARGIN (SDM) Test - Refueling

LCO 3.10.8 The reactor mode switch position specified in Table 1.1-1 for MODE 5 may be changed to include the startup/hot standby position, and operation considered not to be in MODE 2, to allow SDM testing, provided the following requirements are met:

- a. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," MODE 2 requirements for Functions 2.a, 2.d, and 2.e of Table 3.3.1.1-1;
- b. 1. LCO 3.3.2.1, "Control Rod Block Instrumentation," MODE 2 requirements for Function 2 of Table 3.3.2.1-1, with banked position withdrawal sequence requirements of SR 3.3.2.1.8 changed to require the control rod sequence to conform to the SDM test sequence,

OR

2. Conformance to the approved control rod sequence for the SDM test is verified by a second licensed operator or other qualified member of the technical staff;
- c. Each withdrawn control rod shall be coupled to the associated control rod drive (CRD);
- d. All control rod withdrawals during out of sequence control rod moves shall be made in notch out mode;
- e. No other CORE ALTERATIONS are in progress; and
- f. CRD charging water header pressure \geq 940 psig.

APPLICABILITY: MODE 5 with the reactor mode switch in startup/hot standby position.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Separate Condition entry is allowed for each control rod. -----</p> <p>One or more control rods not coupled to its associated CRD.</p>	<p>-----NOTE----- Rod worth minimizer may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation," if required, to allow insertion of inoperable control rod and continued operation. -----</p> <p>A.1 Fully insert inoperable control rod.</p> <p><u>AND</u></p> <p>A.2 Disarm the associated CRD.</p>	<p>3 hours</p> <p>4 hours</p>
<p>B. One or more of the above requirements not met for reasons other than Condition A.</p>	<p>B.1 Place the reactor mode switch in the shutdown or refuel position.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.10.8.1 Perform the MODE 2 applicable SRs for LCO 3.3.1.1, Functions 2.a, 2.d, and 2.e of Table 3.3.1.1-1.</p>	<p>According to the applicable SRs</p>
<p>SR 3.10.8.2 -----NOTE----- Not required to be met if SR 3.10.8.3 satisfied. -----</p> <p>Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 2 of Table 3.3.2.1-1.</p>	<p>According to the applicable SRs</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.8.3	<p>-----NOTE----- Not required to be met if SR 3.10.8.2 satisfied. -----</p> <p>Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.</p>	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	<p>Each time the control rod is withdrawn to "full out" position</p> <p><u>AND</u></p> <p>Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling</p>
SR 3.10.8.6	Verify CRD charging water header pressure \geq 940 psig.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

- e. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
- f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;
- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:
 - 1. For noble gases: less than or equal to a dose rate of 500 mrem/yr to the whole body and less than or equal to a dose rate of 3000 mrem/yr to the skin, and
 - 2. For iodine-131, iodine-133, tritium, and for all radionuclides in particulate form with half lives > 8 days: less than or equal to a dose rate of 1500 mrem/yr to any organ;
- h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;
- i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;
- j. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190;
- k. Limitations on venting and purging of the primary containment through the Standby Gas Treatment System to maintain releases as low as reasonably achievable; and
- l. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
 1. The APLHGR for Specification 3.2.1;
 2. The MCPR for Specification 3.2.2;
 3. The LHGR for Specification 3.2.3;
 4. Deleted;
 5. The Oscillation Power Range Monitor (OPRM) Instrumentation for Specification 3.3.1.1; and
 6. The Rod Block Monitor Instrumentation for Specification 3.3.2.1.

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 1. XN-NF-81-58(P)(A), "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model," Exxon Nuclear Company
 2. XN-NF-85-67(P)(A), "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel," Exxon Nuclear Company
 3. EMF-85-74(P) Supplement 1(P)(A) and Supplement 2(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model," Siemens Power Corporation
 4. ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs," Advanced Nuclear Fuels Corporation
 5. XN-NF-80-19(P)(A) Volume 1, "Exxon Nuclear Methodology for Boiling Water Reactors - Neutronic Methods for Design and Analysis," Exxon Nuclear Company
 6. XN-NF-80-19(P)(A) Volume 4, "Exxon Nuclear Methodology for Boiling Water Reactors: Application of the ENC Methodology to BWR Reloads," Exxon Nuclear Company



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 253 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By application dated June 12, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18163A351), as supplemented by letter dated August 7, 2018 (ADAMS Accession No. ML18219C797), Energy Northwest (the licensee) requested changes to the Technical Specifications (TSs) for Columbia Generating Station (Columbia).

The proposed changes to the renewed facility operating license (RFOL) and TSs are administrative and editorial and will not result in any change to the technical or operating requirements at Columbia.

2.0 REGULATORY EVALUATION

2.1 System Description

The license amendment request proposes to remove the Table of Contents from the Columbia TSs and place it under licensee control, as well as a number of editorial changes to the RFOL and TSs, including removal of an obsolete operating license condition and operating license attachments, removal of obsolete TS information, and renumbering of TS pages. The licensee stated that neither the proposed administrative changes nor the proposed editorial changes result in changes to technical or operating requirements at Columbia.

2.2 Description of the Proposed Changes

2.2.1 Proposed TS Changes

The specific changes the licensee proposed to the TSs are as follows:

1. Remove the Table of Contents from the TSs and place it under the licensee's control;
2. Remove TS 3.2.4, "Average Power Range Monitor (APRM) Gain and Setpoint," and TS 3.3.1.3, "Oscillation Power Range Monitor (OPRM) Instrumentation";
3. Remove the definition "Maximum Fraction of Limiting Power Density (MFLPD)," from TS Section 1.1, "Definitions";
4. Remove portions of TS 3.3.1.1 "Reactor Protection System (RPS) Instrumentation"; TS 3.3.2.1 "Control Rod Block Instrumentation"; TS 3.4.1 "Recirculation Loops Operating"; and TS 3.10.8, Shutdown Margin (SDM) Test - Refueling," containing the header, "Prior to implementation of PRNM [Power Range Neutron Monitor] Upgrade," which includes:
 - a. The removal of TS pages 3.3.1.1-1 through 3.3.1.1-8, 3.3.2.1-1 through 3.3.2.1-6, 3.4.1-1 through 3.4.1-2, and 3.10.8-1 through 3.10.8-4; and
 - b. The removal of the remaining TSs containing the header language, "After implementation of PRNM Upgrade," and the text "after implementation of Power Range Neutron Monitor (PRNM) upgrade," from the APPLICABILITY. The remaining TS pages would be renumbered to 3.3.1.1-1 through 3.3.1.1-10, 3.3.2.1-1 through 3.3.2.1-7, 3.4.1-1 through 3.4.1-2, and 3.10.8-1 through 3.10.8-3.
 - c. Correct two typographical errors in TS 3.3.1.1, as follows:
 - 1) In TS 3.3.1.1, Required Action I.2, a period is missing after the word "OPERABLE"; and
 - 2) In TS Table 3.3.1.1-1, "Reactor Protection System Instrumentation" (page 2 of 4), remove extra hard returns after the 'SURVEILLANCE REQUIREMENTS' for Function 2.c., "Neutron Flux – High," and Function 2.d., "Inop."
5. In TS 5.6.3, "Core Operating Limits Report (COLR)," remove TS 5.6.3a.4 and replaced with "Deleted"; and delete the language, "after implementation of the PRNM upgrade," in TSs 5.6.3a.5 and 5.6.3a.6.
6. Typographical errors that would be corrected, as follows:
 - a. In TS 3.1.6, "Rod Pattern Control," a period would be added after the letter "B" in ACTIONS Table, Condition B of the continued page.
 - b. In TS Surveillance Requirement (SR) 3.3.6.1.5 and SR 3.3.8.1.3, a period would be added after the word "CALIBRATION" in the "Surveillance" column.

- c. In TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation" (TS pages 3, 4, and 5 of 6), the acronyms RWCU, SLC, and RHR SDC would be spelled out when they are first used within the Table as follows: Reactor Water Cleanup (RWCU), Standby Liquid Control (SLC), and Residual Heat Removal (RHR) Shutdown Cooling (SDC).
- d. In the ACTIONS NOTE in TS 3.5.1, "ECCS - Operating," the acronym HPCS would be spelled out (High Pressure Core Spray (HPCS)), and
- e. In TS 5.5.4, "Radioactive Effluent Controls Program," the "and" at the end of the sentence would be removed from TS 5.5.4j, and the period would be deleted and replaced with a semi-colon following the text "and" at the end of TS 5.5.4k.

2.2.2 Proposed Operating License Changes

The licensee proposed the following changes to the RFOL:

1. Remove License Condition 2.C.(33), "Control Room Envelope Habitability Program (CRE); and
2. Remove Attachments 1 and 2, the contents of which were deleted previously in Amendment No. 223, dated March 30, 2012 (ADAMS Accession No. ML120800078).

2.3 Regulatory Requirements

Section 182a, "License Applications" of the Atomic Energy Act of 1954, as amended (the Act), requires applicants for nuclear power plants to include an operating license and TSs as part of their application. The U.S. Nuclear Regulatory Commission (NRC or the Commission) regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical specifications." Pursuant to 10 CFR 50.36, each operating license issued by the Commission includes TSs and includes items in the appropriate categories.

The regulations in 10 CFR 50.36 contain requirements for what is to be included in the licensee's TSs. The Table of Contents, which contains only administrative information, is not required by 10 CFR 50.36 to be in the TSs.

Section 187 of the Act, "Modification of License," states that the "terms and conditions of all licenses shall be subject to amendment, revision, or modification, by reason of amendments of this Act, or by reason of rules and regulations issued in accordance with the terms of this Act." This provision authorizes the NRC to amend licenses.

The regulations in 10 CFR 50.50, "Issuance of licenses and construction permits," states, in part, that "the Commission will issue a license... in such form and containing such conditions and limitations including technical specifications, as it deems appropriate and necessary."

In accordance with 10 CFR 50.54, "Conditions of licenses," the operation of a nuclear power plant is authorized by the Commission subject to conditions of operation identified as a result of Commission's evaluation of applications for operating licenses.

Such conditions were placed on the operating license for Columbia, requiring the licensee to address outstanding licensing issues and facilitate issuance of the original operating license. The original issuance of the Columbia operating license was subject to several additional requirements (license conditions). Additional requirements were incorporated in the license, as required, as a result of ongoing reviews via the license amendment process pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit." In some cases, subsequent license amendments removed certain license conditions when they were no longer applicable. However, the majority of the license conditions have been left intact, including those that are no longer required.

The licensee is proposing administrative changes to the Columbia RFOL to remove or revise those license conditions that no longer apply or have been modified. This proposed RFOL "cleanup" license amendment request also includes minor editorial changes for consistency. Revision of the RFOL is being proposed to retain only those license conditions that remain pertinent to current Columbia operations.

The NRC staff reviewed the licensee's application for changes to the TSs, Table of Contents, and license conditions. The staff's evaluations and conclusions are summarized below.

3.0 TECHNICAL EVALUATION

3.1 Proposed Table of Contents Change

The licensee proposed to revise the Columbia TSs and remove the Table of Contents with the responsibility for maintenance and issuance of updates transferred from the NRC to Energy Northwest. The Table of Contents will no longer be included in the NRC-issued TSs and, as such, will no longer be part of the TSs, Appendix A, to the RFOL. The Table of Contents will be issued by Energy Northwest in conjunction with the implementation of future NRC-approved TS amendments.

The licensee stated that placing the Table of Contents under licensee control eliminates the regulatory burden of submitting Table of Contents pages for NRC review, and allows timely administrative corrections and improvements to the Table of Contents without NRC review and approval.

The NRC staff examined the licensee's proposal to remove the Table of Contents from its TSs and determined that the Table of Contents, per 10 CFR 50.36, is not required to be included within a plant's TSs. The licensee stated that the TS Table of Contents will be maintained, revised, and distributed in accordance with Columbia's administrative procedures and that holders of copies of the TSs, including the NRC, will continue to receive periodic updates of the Table of Contents pages. The NRC staff's review determined that the Table of Contents references the page number of each Specification in the TSs and does not contain any technical information required by 10 CFR 50.36. Because the Table of Contents does not include information required per 10 CFR 50.36, inclusion of a Table of Contents within the TSs is optional. Therefore, the NRC staff concludes that the removal of the Table of Contents from the Columbia TSs is an administrative change and, therefore, is acceptable.

3.2 Proposed TS Changes

3.2.1 TS Change Related to PRNM Upgrade

The implementation of the PRNM upgrade was issued in Amendment No. 226, dated January 31, 2014 (ADAMS Accession No. ML13317B623). The amendment was not implemented until prior to plant startup following Refueling Outage 22. The refueling outage was scheduled to begin in the spring of 2015.

In support of the amendment, TSs 3.3.1.1, 3.3.1.3, 3.3.2.1, 3.2.4, 3.4.1, and 3.10.8 were modified to reflect the applicability of "prior to implementation of PRNM upgrade" or "after implementation of PRNM upgrade," as appropriate, and this related header was added to each specification that included the same modification.

The licensee stated that once the PRNM upgrade was installed in the plant, a TS change would be submitted to delete the obsolete TSs and portions thereof. Amendment No. 226 contained recognition that the following information below would be removed from Columbia's TSs after implementation.

1. TSs 3.2.4 and 3.3.1.3 will be deleted as these specifications are obsolete with the implementation of the PRNM upgrade.
2. The definition of MFLPD will be deleted in TS Section 1.1, along with its usage in TS 3.2.4, as this definition is no longer in use at Columbia.
3. TSs 3.3.1.1, 3.3.2.1, 3.4.1, and 3.10.8 contain pages that are applicable "prior to implementation..." and "after implementation...".
 - Each portion of these TSs containing the header "Prior to Implementation of PRNM Upgrade" will be deleted. TS pages 3.3.1.1-1 through 3.3.1.1-8, 3.3.2.1-1 through 3.3.2.1-6, 3.4.1-1 through 3.4.1-2, and 3.10.8-1 through 3.10.8-4 will be deleted.
 - Each of the remaining TSs containing the header language "After Implementation of PRNM Upgrade" will have this language deleted from the header. The language "after implementation of Power Range Neutron Monitor (PRNM) upgrade" would be deleted from the APPLICABILITY. The remaining TS pages will be renumbered to 3.3.1.1-1 through 3.3.1.1-10, 3.3.2.1-1 through 3.3.2.1-7, 3.4.1-1 through 3.4.1-2, and 3.10.8-1 through 3.10.8-3.
4. TS 5.6.3a.4 in TS Section 5.6, "Reporting Requirements," will be deleted. The language "after the PRNM upgrade" will be deleted from TSs 5.6.3a.5 and 5.6.3a.6.

In the late spring of 2015, Columbia conducted Refueling Outage 22. During that outage, the PRNM upgrade was implemented. The licensee stated that since the PRNM upgrade has been implemented, the TS pages that refer to "prior to implementation..." are obsolete and can be deleted.

Additionally, the licensee proposed to correct two typographical errors in TS 3.3.1.1. These corrections are related to the implementation above and are, as follows:

- In TS 3.3.1.1, Required Action I.2, a period is missing after the word "OPERABLE."
- In TS Table 3.3.1.1-1 (page 2 of 4), there are extra spaces between Function 2.c., "Neutron Flux – High," and Function 2.d., "Inop."

The NRC staff examined the licensee's proposal to delete the TS pages related to the PRNM upgrade and concludes that the deletion of pages that refer to "prior to implementation" is acceptable since the PRNM upgrade has been completed. The NRC staff also reviewed the licensee's correction of the two typographical errors related to the implementation of Amendment No. 226 and concludes that the correction is only administrative and, therefore, is acceptable.

3.2.2 Correction of Typographical Errors

The licensee proposed the following corrections to the typographical errors in the TSs:

1. In the continued page of the ACTIONS Table, Condition B, in TS 3.1.6, "Rod Pattern Control," the period is missing after "B."
2. In TS SR 3.3.6.1.5 and TS SR 3.3.8.1.3, in the "SURVEILLANCE," the period is missing after the word "CALIBRATION."
3. In TS Table 3.3.6.1-1, "Primary Containment Isolation" (pages 3, 4, and 5 of 6), the acronyms RWCU (Function 4), SLC (Function 4.k) and RHR SDC (Function 5) will be spelled out when they are first used within the table as Reactor Water Cleanup (RWCU), Standby Liquid Control (SLC), and Residual Heat Removal (RHR) Shutdown Cooling (SDC).
4. In TS 3.5.1, "ECCS - Operating," the ACTIONS NOTE, the acronym HPCS (High Pressure Core Spray) will be spelled out because it is the first use of this acronym within the TS.
5. In TS 5.5.4, "Radioactive Effluent Controls Program," the "and" will be deleted from TS 5.5.4j. The period will be deleted in TS 5.5.4k and replaced with a semi-colon following the text "and" (; and) at the end of TS 5.5.4k.

The NRC staff further reviewed the licensee's correction of typographical errors and concludes that the corrections are administrative and are supported by the Technical Specifications Task Force (TSTF) guidance in TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications," dated June 2005 (ADAMS Accession No. ML060720511) and, therefore, are acceptable.

3.3 Proposed Changes to the RFOL

3.3.1 Removal of License Condition 2.C.(33), "Control Room Envelope Habitability Program (CRE)"

The licensee stated that the first performances of the associated control room envelope habitability surveillance, assessment, and measurement are complete. Successive performances of the surveillances, assessments, and measurements will follow the respective frequencies identified in TS 5.5.14c and 5.5.14d. The licensee stated that with the first performances complete for Columbia, the operating license conditions are no longer required and can be removed.

The NRC staff reviewed the licensee's proposal to remove License Condition 2.C.(33). The licensee completed the license condition as follows:

License Condition	Specification	Completion Date
2.C.(33)(a)	5.5.14c(i)	11/17/2010
2.C.(33)(b)	5.5.14c(ii)	6/24/2010
2.C.(33)(c)	5.5.14d – System A	3/18/2010
2.C.(33)(c)	5.5.14d – System B	12/6/2011

Based on completion of the license condition, the NRC staff concludes that it is acceptable to remove it from the TSs.

3.3.2 Removal of Attachments 1 and 2

In Amendment No. 223 dated March 30, 2012, Columbia's operating license was modified to delete the contents of Attachments 1 and 2. However, the attachments themselves were retained. The licensee proposes to remove these attachment pages from the Columbia RFOL.

The NRC staff reviewed the licensee's proposal to remove Attachments 1 and 2 from Columbia's RFOL. The staff finds that the removal of these attachments is administrative since the license conditions related to these Attachments were deleted previously in Amendment No. 223. Therefore, the staff concludes that the removal of Attachments 1 and 2 is acceptable.

3.4 Summary

Based on the licensee's license amendment request and its supplement for this amendment, the NRC staff finds that the licensee's proposed changes to the Columbia RFOL and TSs are administrative and editorial and delete obsolete information. Further, the licensee's proposed changes are consistent with the regulatory requirements and NRC guidance. Therefore, the staff concludes that the proposed changes to the Columbia RFOL and TSs are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment on February 25, 2019. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendment involves 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, published in the *Federal Register* on September 11, 2018 (83 FR 45984), and there has been no public comment on such finding. The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: A. Russell

Date: June 20, 2019

SUBJECT: COLUMBIA GENERATING STATION - ISSUANCE OF AMENDMENT NO. 253
RE: RENEWED FACILITY OPERATING LICENSE AND TECHNICAL
SPECIFICATION CLEAN UP (EPID L-2018-LLA-0176) DATED JUNE 20, 2019

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