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Subject: **Changes to ESBWR DCD Chapters 16 and 16B — Technical Specification 3.3.8.1, "Diverse Protection System (DPS)."**

The purpose of this letter is to submit markups identifying changes to ESBWR DCD Chapters 16 and 16B for Technical Specification 3.3.8.1, "Diverse Protection System (DPS)." These changes are the result of recent interactions with the NRC staff, which included requests to: (1) revise SR 3.3.8.1.3 to include a reference to SCP specification 5.5.11, and (2) revise the TS and Bases to make clear that the GDCS equalizing subsystem DPS initiators are covered by LCO 3.3.8.1.

The specific changes are shown on the markups provided in Enclosure 1. The changes identified on these markups will be incorporated into ESBWR DCD Revision 8.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,

Richard E. Kingston
Vice President, ESBWR Licensing

D068
NRO

Enclosure:

1. ESBWR DCD Chapter 16 and 16B Markups for Technical Specification 3.3.8.1

cc: AE Cubbage USNRC (with enclosure)
JG Head GEH (with enclosure)
DH Hinds GEH (with enclosure)
JD Friday GEH (with enclosure)
eDRFSection 123-3489

Enclosure 1

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**ESBWR DCD Chapter 16 and 16B Markups
for
Technical Specification 3.3.8.1**

3.3 INSTRUMENTATION

3.3.8.1 Diverse Protection System (DPS)

LCO 3.3.8.1 The DPS Functions in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY MODES 1, 2, 3, and 4

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DPS Functions inoperable.	A.1 Restore required DPS Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.8.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.8.1.2 Perform CHANNEL FUNCTIONAL TEST.	31 days

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION <u>consistent with Specification 5.5.11, "Setpoint Control Program (SCP)."</u>	24 months
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.8.1-1 (page 1 of 1)
Diverse Protection System

FUNCTION	SURVEILLANCE REQUIREMENTS
1. Automatic Depressurization System - Actuation	
a. Reactor Vessel Level – Low, Level 1	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4
b. Drywell Pressure – High (Manual Actuation)	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4
2. Gravity–Driven Cooling System Injection Lines - Actuation	
a. Reactor Vessel Level – Low, Level 1	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4
b. Drywell Pressure – High (Manual Actuation)	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4
3. Gravity–Driven Cooling System Equalizing Lines - Actuation	
a. Reactor Vessel Level – Low (Manual Actuation)	<u>SR 3.3.8.1.1</u> <u>SR 3.3.8.1.2</u> <u>SR 3.3.8.1.3</u> <u>SR 3.3.8.1.4</u>
34. Reactor Water Cleanup/Shutdown Cooling System Lines - Isolation	
a. Reactor Water Cleanup/Shutdown Cooling System Differential Mass Flow – High	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4
45. Isolation Condenser/Passive Containment Cooling System Expansion Pool to Equipment Pool Cross-Connect - Actuation	
a. Isolation Condenser/Passive Containment Cooling System Pool Level – Low	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY (continued)

1.a, 2.a Reactor Vessel Level – Low, Level 1

Automatic actuation of ADS (consisting of the SRVs and DPVs) and GDCS injection occurs upon detection of Reactor Vessel Level – Low, Level 1. Reactor Vessel water level is detected by four wide range water level sensors that are different from those used for the SSLC/ESF wide range level sensors. Low RPV water level indicates the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result.

The Reactor Vessel Level – Low, Level 1 Function is required to be OPERABLE in MODES 1, 2, 3, and 4, consistent with the assumptions in Reference 1.

1.b, 2.b Drywell Pressure – High (Manual Actuation)

Manual controls are provided for ADS (consisting of the SRVs and DPVs) and GDCS injection initiation upon detection of high drywell pressure sustained for 60 minutes. This control is provided to mitigate small and medium break LOCA scenarios that do not result in GDCS and ADS initiation from low RPV water level. This Function also requires OPERABILITY of DPS indication of the high drywell pressure condition.

The Drywell Pressure – High (Manual Actuation) Function is required to be OPERABLE in MODES 1, 2, 3, and 4 consistent with the assumptions in Reference 1.

3.a. Reactor Vessel Level – Low (Manual Actuation)

Manual controls are provided for initiation of the GDCS equalizing lines upon detection of low reactor vessel water level. Low RPV water level indicates the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. This Function also requires OPERABILITY of DPS indication of the low water level condition.

The Reactor Vessel Level – Low (Manual Actuation) Function is required to be OPERABLE in MODES 1, 2, 3, and 4, consistent with the assumptions in Reference 1.

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY (continued)

34.a Reactor Water Cleanup/Shutdown Cooling System Differential Mass Flow – High

Automatic isolation of RWCU/SDC occurs upon detection of Reactor Water Cleanup/Shutdown Cooling System Differential Mass Flow – High. Isolation of the RWCU System is initiated when RWCU/SDC System Differential Mass Flow – High is sensed to prevent exceeding off-site doses.

The function of the RWCU/SDC isolation valves, in combination with other accident mitigation systems, is to limit fission product release during a postulated Design Bases Accident (DBA).

The Reactor Water Cleanup/Shutdown Cooling System Differential Mass Flow – High Function is required to be OPERABLE in MODES 1, 2, 3, and 4, consistent with the assumptions in Reference 1.

45.a Isolation Condenser/Passive Containment Cooling System Pool Level – Low

Automatic actuation of the IC/PCCS expansion pool-to-equipment pool cross-connect occurs upon detection of Isolation Condenser/Passive Containment Cooling System Pool Level – Low in the associated IC/PCCS inner expansion pool. Actuation of the IC/PCCS expansion pool-to-equipment pool cross-connect ensures a sufficient quantity of water is available for decay heat removal in the event of a design basis accident.

The Isolation Condenser/Passive Containment Cooling System Pool Level – Low Function is required to be OPERABLE in MODES 1, 2, 3, and 4, consistent with the assumptions in Reference 1.

ACTIONS

A Note has been provided to modify the ACTIONS related to the DPS Functions. Section 1.3, Completion Times, specifies once a Condition has been entered, subsequent divisions, subsystems, components or variables expressed in the Condition discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the condition. However, the Required Actions for inoperable DPS Functions provide appropriate compensatory measures for separate