18B Differences Between BWROG EPG Revision 4 and ABWR EPG

The information in this appendix of the reference ABWR DCD, including all subsections and tables, is incorporated by reference with the following departure.

STD DEP T1 2.14-1 (Table 18B-1)

Table 18B-1 Differences Between BWROG EPG Revision 4 and ABWR EPG

ABWR EPG Step	BWROG EPG Rev. 4 Step	Differences from BWROG Rev. 4 EPG	Basis for Differences
PC/H-1 Override, second bullet item	PC/H-1 Override, second bullet item	■ *Deleted phrase, "hydrogen mixing systems and" throughout this document, and deleted "secure and prevent operation of the FCS and,..."*	■ *The ABWR ~~Flammability Gas Control System~~ does not have hydrogen ~~mixing systems~~* recombiners.

Table 18B-1 Differences Between BWROG EPG Revision 4 and ABWR EPG (Continued)

ABWR EPG Step	BWROG EPG Rev. 4 Step	Differences from BWROG Rev. 4 EPG	Basis for Differences
PC/H-1.1 to 1.2 Override	PC/H-1.1 to 1.2 Override	■ *Added instruction to isolate containment venting if containment pressure exceeds the design pressure of SGTS and RBHVAC Systems.*	■ *Containment venting at relatively low containment pressure is permitted only if containment pressure is less than the design pressure of these "soft vent" systems (RBHVAC, SGTS) to preclude structural damage to these system equipment. The vent path is automatically isolated on high containment pressure. Bypassing this isolation interlock and opening the vent path for venting and purging will defeat the purpose of the rupture disks. At such low hydrogen concentration (0.1%), it is inappropriate to bypass the high containment pressure isolation and open the vent path which can damage plant equipment that may be needed later for post-accident recovery. ~~If hydrogen concentration reaches 0.5%, the hydrogen recombiners are placed into operation.~~* *In case there is a LOCA and ECCS is available, boiling in the reactor is suppressed by the injection of cold water into the reactor, stopping hydrogen generation by radiolysis. Even if the containment is isolated on high pressure, hydrogen concentration is expected to not exceed 0.5%, precluding the need for vent and purge.* *If no pumps are available after a LOCA, containment pressure will increase to a pressure that will actuate the rupture disks in about 24 hours, prior to reaching an explosive mixture~~, assuming hydrogen recombiners are not available~~.* *In severe accident scenarios with core damage, the containment vent paths will be automatically isolated by a high radiation signal. According to the BWROG EPGs, venting at low hydrogen concentration is not allowed in the presence of high radiation.*

Table 18B-1 Differences Between BWROG EPG Revision 4 and ABWR EPG (Continued)

ABWR EPG Step	BWROG EPG Rev. 4 Step	Differences from BWROG Rev. 4 EPG	Basis for Differences
PC/H-2.1	PC/H-2.1	■ ~~*Replaced phrase, "place hydrogen recombiners in service taking suction directly on the drywell and operate the drywell hydrogen mixing system", with the phrase, "place FCS in service."*~~ Deleted step.	■ ~~*The Flammability Gas Control System (FCS) is described in Setion 6.2.5. The system equipment is located outside of the drywell. It consists of two blowers that only take suction on the drywell and two hydrogen recombiners. Flow is discharged to the wetwell. An explict instrument to take suction directly from the drywell is redundant. Instruction is given to place the FCS into service rather than to start the hydrogen recombiners because in the FCS, pushing the FCS Start control switch will start the blower, heater, and recombiner, and align valves.*~~ The ABWR does not have hydrogen recombiners.
		■ ~~*Added phrase, "and only if suppression pool water level is below [11.70 m(elevation of the suppression pool-to-lower drywell vent)]", as a condition for initiating FCS.*~~	■ ~~*When the recombiners discharge into the wetwell, the vacuum breakers open to allow flow into the lower drywell, through the suppression pool-to-lower drywell vents to the upper drywell. This flow path can only be established if the vents are not covered by water.*~~
		■ ~~*Added phrase, "enter [procedure developed from the RPV Control Guideline] at [Step RC-1] and execute ti concurrently with this procedure."*~~	■ ~~*Step RC-1 requires a reactor scram. Scramming the reactor at this point will make the depressurization (as required in STep PC/H-4) transient less severe and is consistent with the strategies in other sections of the Primary Containment Control Guidelines.*~~
PC/H-2.2	PC/H-2.2	■ ~~*Replaced the phrase, "secure any hydrogen recombiner taking suction on the drywell," with the phrase, "secure FCS operation."*~~ Deleted step.	■ *See basis for PC/H-2.1 above.*

Table 18B-1 Differences Between BWROG EPG Revision 4 and ABWR EPG (Continued)

ABWR EPG Step	BWROG EPG Rev. 4 Step	Differences from BWROG Rev. 4 EPG	Basis for Differences
PC/H-3.1	PC/H-3.1	■ ~~*Deleted phrase, "but only if suppression chamber hydrogen..." in the first paragraph through "... directly on the suppression chamber" in the second paragraph.*~~ Deleted step. ~~*In the second paragraph, replaced "taking suction indirectly on the suppression chamber by way of the drywell" with "place FCS in service."*~~	■ ~~*The ABWR hydrogen recombiners only take suction directly on the drywell. They take suction indirectly on the suppression pool chamber by way of the drywell in conjuction with operation of the blowers of FCS and the vacuum breakers and through the suppression pool to lower drywell vents.*~~ The ABWR does not have hydrogen recombiners.
		■ ~~*Added instruction to operate the FCS only if suppression pool water level is below the suppression pool to lower drywell vent.*~~ ■ ~~*Added phrase, "enter [procedure developed from the RPV Control Guideline] at [Step RC-1] and execute it concurrently with this procedure."*~~	■ ~~*Operation of the FCS will purge the wetwell through the vacuum breakers. The purge flow is mixed with the drywell atmosphere. Recombination takes place in the recombiners located outside of the drywell. Operation of FCS is contingent upon suppression pool water level being below the pool to lower drywell vents to allow mixing of the drywell and wetwell atmosphere through these vents. See also discussion for basis for step DW/T 2.*~~ ■ ~~*Step RC-1 requires a reactor scram. Scramming the reactor at this point will make the depressurization (as required in Step PC/H-4) transient less severe and is consistent with the strategies in other sections of the Primary Containment Control Guidelines.*~~
PC/H-3.2	*PC/H-3.2*	■ *Deleted step.*	■ *The ABWR does not have recombiners* ~~*that take suction directly on the suppression chamber.*~~