15E ATWS Performance Evaluation

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

STD DEP T1 3.4-1 (Figures 15E-1a, 15E-1b, 15E-1c)

STD DEP Admin

15E.4 ATWS Logic and Setpoints

STD DEP Admin

The mitigation of ATWS events is accomplished by a multitude of equipment and procedures. These include ARI, FMCRD run-in, feedwater runback, RPT, recirculation runback, ADS inhibit, and SLCS. The logic of this ATWS mitigation is presented in Figures 15E-1a, 15E-1b and 15E-1c. The following are the initiation signals and setpoints for the above response:

(7) ADS inhibit

- *Automated initiation of ADS is inhibited ~~unless there is a coincident low reactor water level signal (level 1.5) and an APRM ATWS permissive signal~~* whenever potential ATWS conditions exist as indicated by APRMs not being downscale.

15E.5 Selection of Events

STD DEP Admin

Category 1. Limiting Events

(3) Loss of Feedwater

This transient is less severe than the above two events. However, it is the only event which is mitigated by ARI, FMCRD run-in, or boron injection, *initiated from the low level signals. Thus, this event is analyzed to show that the low level trips are capable to mitigate the event.*

(4) Loss of Feedwater Heater

Category 2. Moderate Impact Events

(5) Turbine Trip with Bypass Valves Open

This transient usually produces higher neutron ~~flow heat~~ flux ~~and vessel pressure~~ than ~~those from~~ the *MSIV closure event due to the fast closure of the turbine stop valves. However, the availability of the main condenser significantly reduces the amount of steam discharged into the suppression pool.*

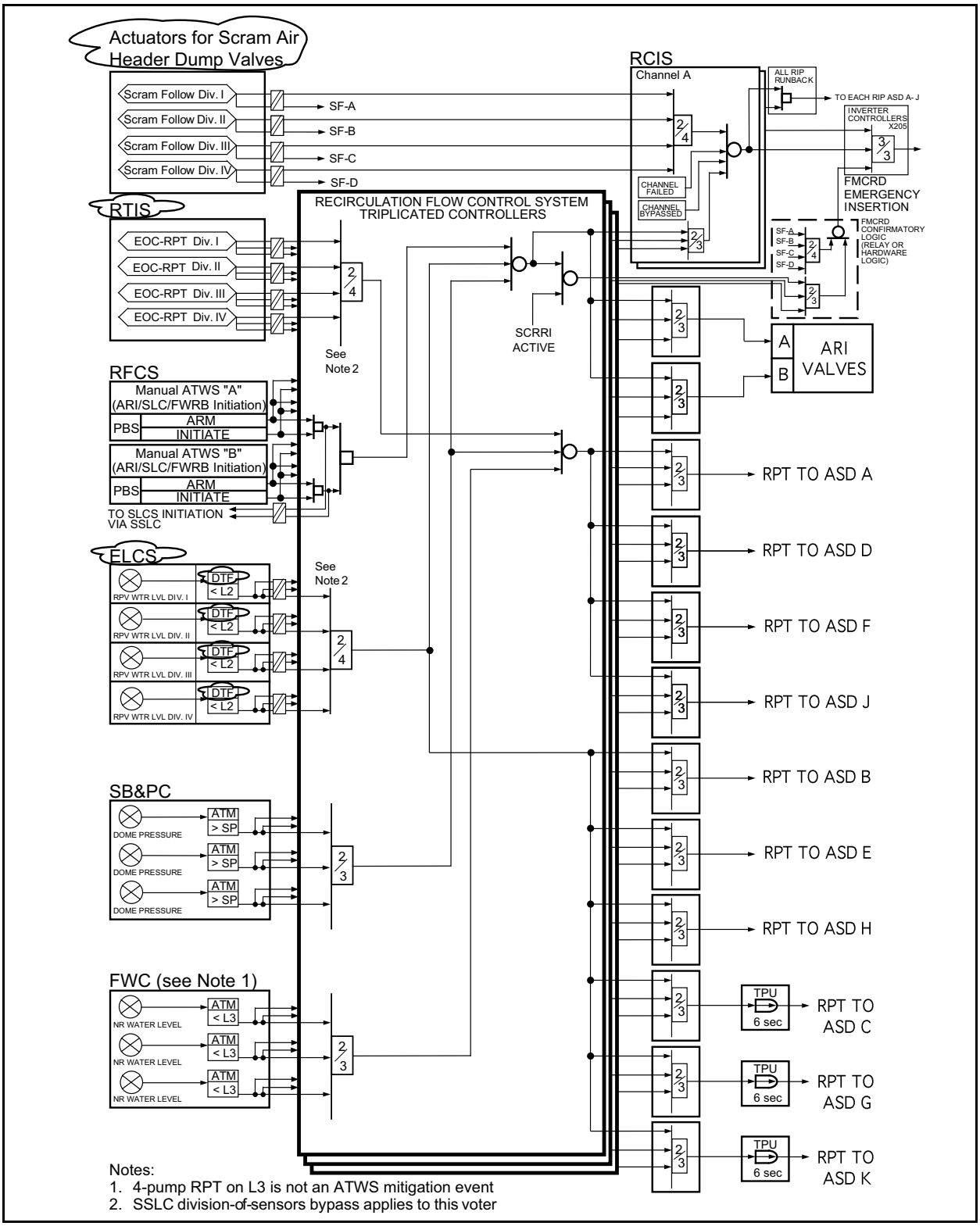

Figure 15E-1a ATWS Mitigation Logic (ARI, FMCRD Run-In, RPT, Manual Initiation)

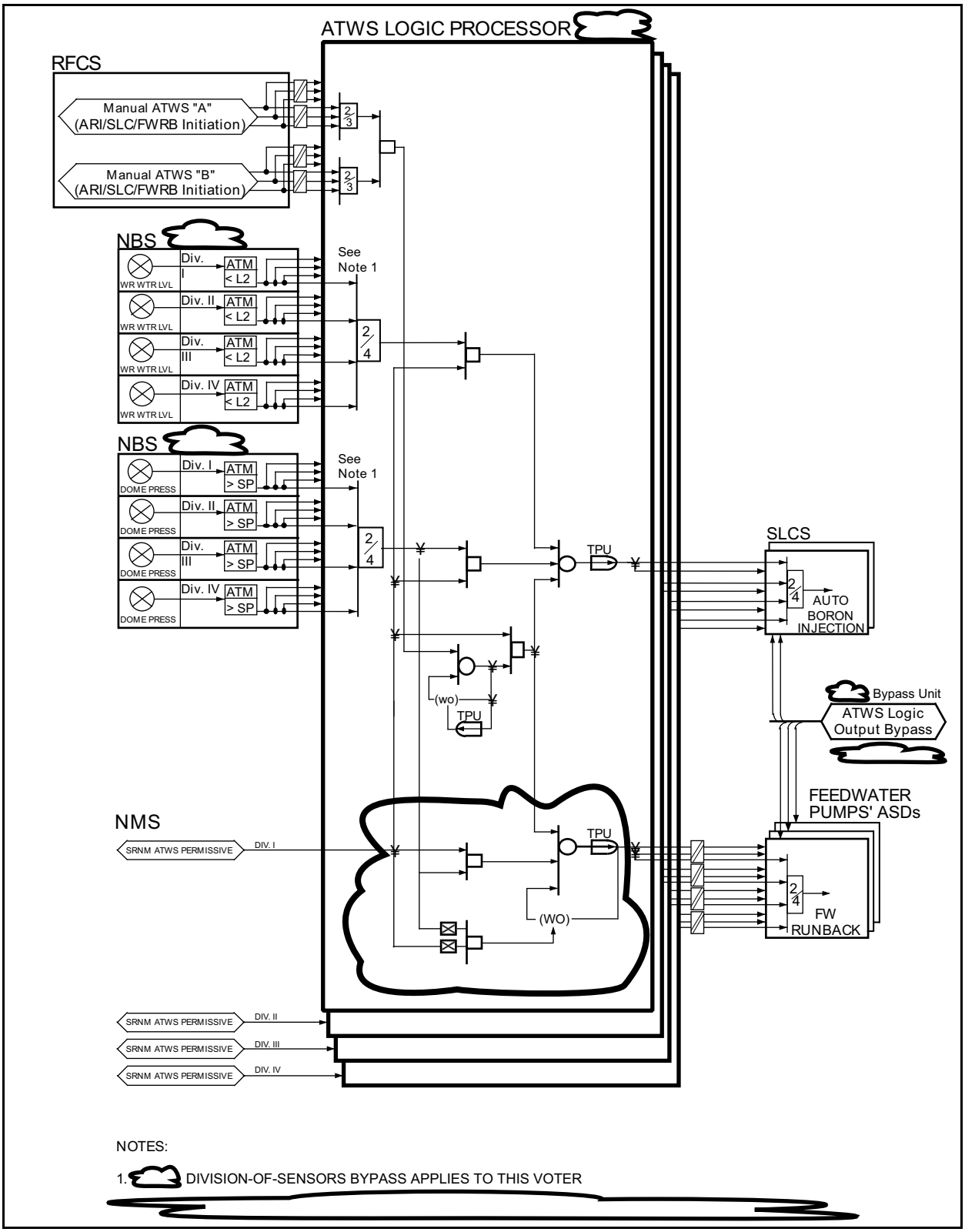

Figure 15E-1b ATWS Mitigation Logic (SLCS Initiation, Feedwater Runback)

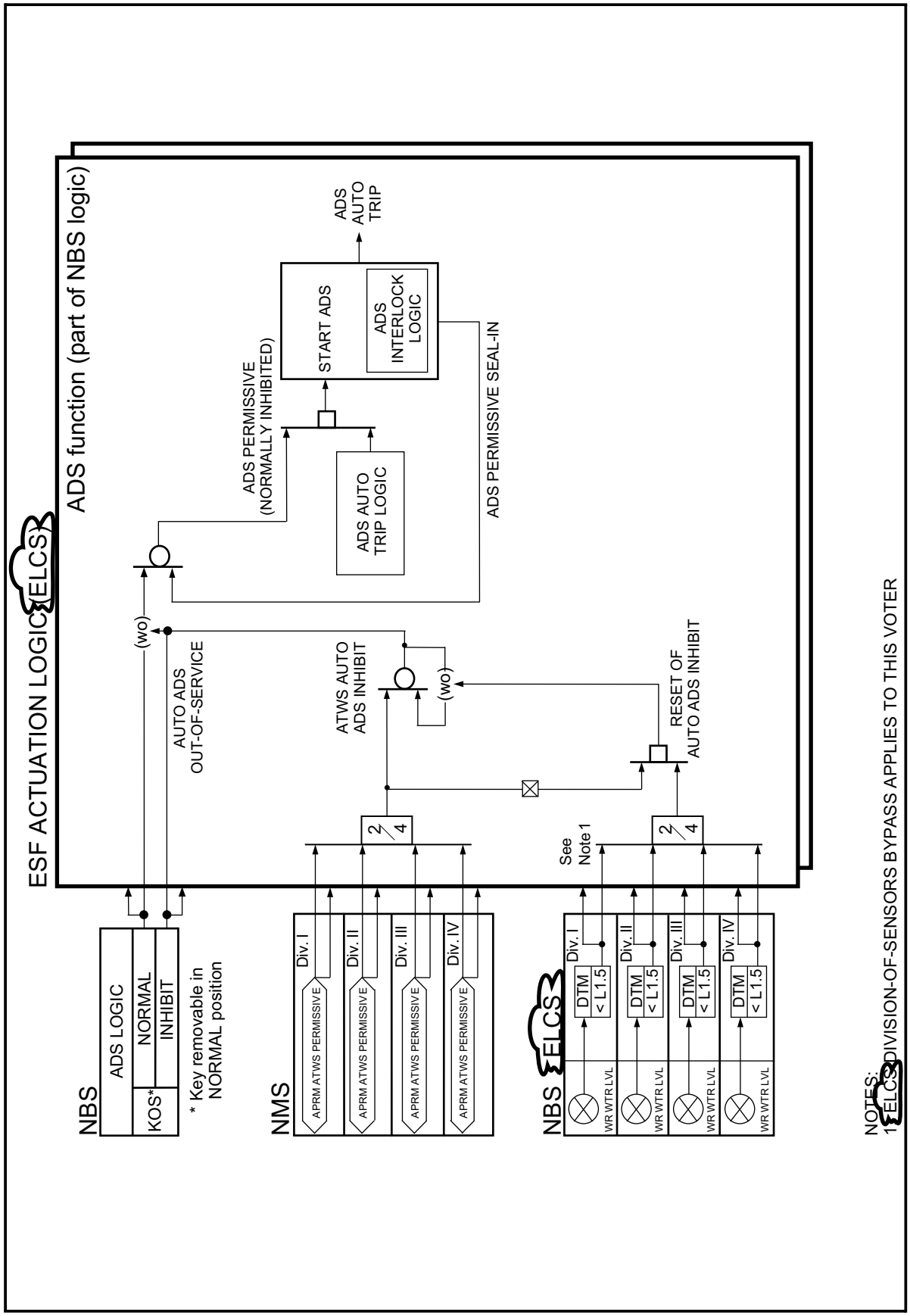

Figure 15E-1c ATWS Mitigation Logic