

18.4 Control Room Standard Design Features

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

STD DEP T1 3.4-1

STD DEP 7.5-1

STD DEP 18.4-1

18.4.2.1 Listing of Features

STD DEP T1 3.4-1

- (2) *The use of plant ~~process~~ computer ~~system~~ system functions driven on-screen control video display units (VDUs) for safety system monitoring and non-safety system control and monitoring.*
- (3) *The use of a separate set of on-screen control VDUs for safety system control and monitoring and separate on-screen control VDUs for non-safety system control and monitoring; the operation of these two sets of VDUs is entirely independent of the ~~plant process~~ computer ~~system~~ system functions. Further, the first set of VDUs and all equipment associated with their functions of safety system control and monitoring are divisionally separate and qualified to Class 1E standards.*
- (11) *The independence of the fixed-position displays from the plant ~~process~~ computer functions.*
- (12) *The inclusion within the large display panel of a large video display unit which is driven by the plant ~~process~~ computer ~~system~~ functions.*

18.4.2.2 Main Control Console

STD DEP T1 3.4-1

- (1) *On-screen control VDUs for safety system monitoring and non-safety system control and monitoring which are driven by the plant ~~process~~ computer ~~system~~ functions (Subsection 18.4.2.3).*
- (2) *A separate set of on-screen control VDUs for safety system control and monitoring ~~and separate on-screen control VDUs for non-safety system control and monitoring; the operation of these two sets of VDUs that is entirely independent of the ~~plant process~~ computer ~~system~~ functions. Further, the first set of~~ The VDUs and all equipment associated with their functions of safety system control and monitoring are divisionally separate and qualified to Class 1E standards (Subsection 18.4.2.4).*
- (3) *Dedicated function switches (Subsection 18.4.2.5).*

STD DEP 18.4-1

The main control console is also equipped with a limited set of dedicated displays for selected functions (e.g., the Standby Liquid Control System and the synchronization of the main generator to the electrical grid).

18.4.2.3 VDUs Driven by Plant Process Computer Functions ~~Driven VDU~~

STD DEP T1 3.4-1

A set of onscreen control VDUs is incorporated into the main control console design to support the following activities:

- (1) *Monitoring of plant systems, both safety and ~~non-safety~~ nonsafety-related*
- (2) *Control of non-safety system components*
- (3) *Presentation of system and equipment alarm information*

This set of VDUs is driven by the plant ~~process~~ computer ~~system~~ functions. Thus, data collected by the plant process computer functions is available for monitoring on these VDUs. All available display formats can be displayed on any of these VDUs.

18.4.2.4 VDUs Independent of Plant Process Computer Functions ~~Independent VDU~~

STD DEP T1 3.4-1

A set of VDUs which are independent of the plant process computer functions are also installed on the main control console. These VDUs are each driven by independent processors. ~~They are divided into two subsets:~~

- ~~(1) *The first subset consists of those These VDUs which are dedicated, divisionally separated devices. The VDUs in this group can only be used for monitoring and control of equipment within a given safety division. The VDUs are qualified, along with their supporting display processing equipment, to Class 1E standards.*~~
- ~~(2) *The second subset of process computer independent VDUs are used for monitoring and control of non-safety plant systems. The VDUs in this subset are not qualified to Class 1E equipment standards.*~~

18.4.2.8 Fixed-Position Display

STD DEP T1 3.4-1

The fixed-position portion of the large display panel provides key plant information for viewing by the entire control room staff. The dynamic display elements of the fixed position displays are driven by dedicated microprocessor-based controllers which are independent of the plant ~~process~~ computer ~~system~~ functions.

18.4.2.9 Large Variable Display

STD DEP T1 3.4-1

The large variable display which is included on the large display panel is a VDU which is driven by the plant ~~process~~ computer ~~system~~ functions. Any screen format resident in the ~~plant process~~ computer ~~system~~ functions can be shown on this large variable display.

18.4.2.10 Supervisors' Console

STD DEP T1 3.4-1

The console provided for the control room supervisors is equipped with VDUs on which any screen format resident in the ~~plant process~~ computer ~~system~~ functions available to the operators at the main control console is also available to the shift supervisor. The location of this console in the control room is discussed in Subsection 18.4.2.15.

18.4.2.11 SPDS

STD DEP 7.5-1

- (1) *RPV pressure*
- (2) *RPV water level*
- (3) *Core neutron flux (startup range and power range instruments)*
- (4) *Suppression pool temperature*
- (5) *Suppression pool water level*
- (6) *Drywell temperature*
- (7) *Drywell pressure*
- (8) *Drywell water level*
- (9) *Control rod scram status*
- (10) *Drywell oxygen concentration (when monitors are in operation)*
- (11) *Drywell hydrogen concentration (when monitors are in operation)*
- (12) *Wetwell oxygen concentration (when monitors are in operation)*
- (13) *Wetwell hydrogen concentration (when monitors are in operation)*
- (14) *Containment radiation levels*
- (15) Wetwell pressure

