

19.11 Human Action Overview

Several functions, performed manually in an earlier ABWR design, were automated to reduce the dependence on human actions. In addition, other studies were performed to provide an improved understanding of human actions in the PRA.

The Level 1 full power internal events PRA analysis models the operator actions in detail and accounts for dependencies among them. From the results of this PRA, the most important operator actions were identified and documented in Subsection 19D.7. These include actions taken to provide water injection to the reactor vessel if the several automatic injection features fail to accomplish this function and actions taken to remove residual heat from the containment. Sensitivity studies of the core damage frequency resulting from the Level 1 analysis were also included in Subsection 19D.7 to verify the important operator actions.

In addition, the PRA was reviewed to identify human actions which were assumed in other parts of the analysis (Subsection 19D.7). From these human actions and those modeled in the Level 1 full power internal events PRA, actions were identified which should be given consideration as being “CRITICAL TASKS” as defined by the human factors evaluation Design Acceptance Criteria, as noted in Subsection 18E.2. These human factors are discussed in Subsection 19D.7.

The human actions lists were also reviewed to ensure consistency with the ABWR emergency procedure guidelines (Appendix 18A). This review is documented in Appendix 18F. Some of the actions are not appropriate for inclusion in the symptom based emergency procedure guidelines. These are included as COL license information in Section 19.9.