19.4 External Event Analysis and Shutdown Risk Analysis

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

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19.4.3.4 Results of the Analysis

The following site-specific supplement addresses additional results of the analysis.

The STP 3 & 4 site-specific geology is bounded by the reference ABWR DCD seismic design.

19.4.4 Fire Protection Probabilistic Risk Assessment

The following site-specific supplement addresses additional results of the analysis.

The ABWR FIVE analysis was reviewed as discussed in Appendix 19M, based on the proposed plant departures and STP 3 & 4 site-specific characteristics. The existing ABWR FIVE results are considered bounding for the STP ABWR.

19.4.5 ABWR Probabilistic Flooding Analysis

The ABWR probabilistic flooding assessment considered internal flooding and external flooding events. The results of the internal and external flooding assessments are discussed below.

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The results of the ABWR Probabilistic Internal *Flooding Analysis show that the turbine, control, and reactor buildings are the only structures that required evaluations for potential flooding. The other buildings do not contain any equipment that could be used for safe shutdown or potential flooding would not result in a plant transient.*

The following standard supplement addresses probabilistic flooding analysis.

The ABWR Probabilistic External Flooding Analysis screened all except two external flooding events from consideration because flood waters would not rise to an elevation above the entrance to plant buildings. The two external flooding events with the potential to result in core damage are a) breach of the main cooling reservoir and b) multiple, concurrent failures of upstream dams.

Both external flooding events are assumed to cause a non-recoverable loss of offsite power as well as fail all equipment in the turbine building and the fire protection pump house.

Failure of any watertight door to prevent external flood waters from entering the reactor building was assumed to result in core damage since the essential AC switchgear is located below grade and there are no internal watertight barriers that would prevent water that enters the reactor building from causing failure of all three AC divisions.

Failure of any watertight door to prevent water from entering the control building was assumed to result in core damage because all three essential DC divisions and the main control room are located below grade and there are no internal watertight barriers that would prevent water that enters the control building from failing all three DC divisions or the main control room. For a breach of the main cooling reservoir, timely operator action is required to close the normally-open main control room access door. For multiple, concurrent upstream dam failures, many hours are available from failure of the last dam until flood waters reach the site. Therefore, failure of the operator action to close the main control room access door is considered negligible.

Additionally, failures that resulted in a station blackout were assumed to be non-recoverable and result in core damage.

The total CDF from external flooding events is very small.