Enclosure 1

Changes to PSAR Chapter 7

(Non-Proprietary)

The water tank isolation valves ~~also fail open~~fail in place upon loss of power. The decay heat removal portion of the RPS can receive the actuation signal from either an automatic or manual source.

The decay heat removal portion of the RPS uses core temperature and neutron detectors as inputs through hardwired, analog, safety-related signal wireways that are terminated at local cabinets. Section 7.5 provides additional information about the sensors that provide input to the RPS.

The decay heat removal portion of the RPS also includes a manual actuation capability from the main control room and the remote onsite shutdown panel. Section 7.4 includes a discussion of the human interface with the decay heat removal portion of the RPS.

Table 7.3-2 provides a list of interlocks implemented for RPS systems. Before sufficient fission products and subsequent decay heat is produced in the core, for example during startup, DHRS has no safety function. During this period, the decay heat removal portion of the RPS includes a manual inhibition of the DHRS that is available to plant operators to allow for additional thermal management capabilities. Once decay heat is produced at a sufficient rate in the core, the RPS blocks the manual inhibition capability utilizing safety-related actuations. After shutdown, once fission product decay heat production has dropped to levels not requiring DHRS, the RPS removes the block on the manual inhibition capability. The parameters the RPS uses to determine if the manual inhibition is to be permitted or blocked are neutron detectors (source and power range) and reactor vessel temperature.

7.3.2 Design Bases

- Consistent with PDC 1, the RPS is designed using relevant industry codes and standards and the Quality Assurance program.
- Consistent with PDC 2, the RPS is designed to withstand and be able to perform during natural phenomena events.
- Consistent with PDC 3, the RPS is designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions.
- Consistent with PDC 4, the RPS is designed for the environmental conditions associated with normal operation, maintenance, testing, and postulated events.
- Consistent with PDC 10 and 20, the RPS provides reactor trip and decay heat removal actuation that ensure radionuclide release design limits are not exceeded during normal operation.
- The RPS implements PDC 13 in that the system includes sensors that monitor core temperature, vessel level, and power level. The sensors monitor variables and systems over their anticipated ranges for normal operation and for postulated event conditions.
- Consistent with PDC 15, the RPS provides reactor trip and decay heat removal actuation to ensure that the design conditions of the reactor coolant boundary are not exceeded during normal operation.
- Consistent with PDC 20, the RPS provides automatic reactor trip and decay heat removal actuation to ensure radionuclide release design limits are not exceeded as a result of postulated events. The RPS is also designed to identify postulated event conditions and initiate passive insertion of reactivity shutdown elements and passive decay heat removal.
- Consistent with PDC 21, the RPS is designed with sufficient redundancy and independence to assure than no single failure results in loss of its protection function. Individual components of the RPS may be removed from service for testing without loss of required minimum redundancy. The RPS is designed to permit periodic testing.
- Consistent with PDC 22, the effects of natural phenomena, and of normal operating, maintenance, testing, and postulated event conditions, do not result in loss of the protection function for the RPS.