2.4S.10 Flooding Protection Requirements

The following supplement addresses COL License Information Item 2.19.

As discussed in Section 2.4S.2, the design basis flood elevation in the STP 3 & 4 power block area is at elevation 40.0 ft mean sea level (MSL), or NGVD (National Geodetic Vertical Datum) 29. Therefore, all safety-related facilities require flood protection measures up to at least elevation 40.0 ft MSL. The design basis flood elevation is determined by assessing a number of different flooding scenarios as a result of man made structures and various types of meteorological and hydrological events presented in Subsection 2.4S.2. The design basis flood for the STP 3 & 4 site is based on the MCR embankment breach (non-seismic Category 1 embankment), and it is discussed in detail in Subsection 2.4S.4. STP 3 & 4 safety-related facilities are the Reactor Building, Control Building, and the Ultimate Heat Sink (UHS) basin, cooling towers, and reactor service water (RSW) pump houses. The Reactor and Control Buildings and the UHC and RSW pump houses are located in the power block area of the site. Site grade elevations in the STP 3 & 4 power block area range from 32 ft MSL to 36.6 ft MSL. Thus, the Reactor Buildings, Control Buildings,UHS water storage basins, and RSW pump houses are subject to flooding and require flood protection.

Safety-related facilities are designed to withstand the combination of flooding conditions and wave-run up, including both static and dynamic flooding forces, associated with the flooding events discussed in Subsection 2.4S. Protection of safety-related structures and components is discussed in Subsection 3.4.

An MCR embankment breach could result in significant erosion of earth material in the area of the breach. If this were to occur in the STP 3 & 4 power block area, the foundations for the safety-related facilities are deep enough to withstand the erosive forces of the MCR embankment breach and would not be affected. The bottom of the safety-related facility foundation elevations range from approximately elevation -50.25 ft MSL for the Reactor Building to approximately elevation 4 ft MSL for the UHS basin. Static and dynamic flood forces for Seismic Category I structures are discussed in Subsection 3.4.

In addition to structural protection against static, dynamic, and erosion flood forces, the safety-related facilities must remain free from flooding and intrusion of water into areas that contain safety-related equipment. All safety-related facilities in the power block are designed to be water tight at or below elevation 40.0 ft MSL. All water tight doors and hatches are normally closed under administrative controls and open outward. All ventilation openings are located above elevation 40.0 ft MSL. The UHS and Pump House is designed to be watertight below 50 ft MSL.

~~An MCR embankment breach near the STP 3 & 4 power block area would not provide sufficient time for implementation of emergency operating procedures or flood warning systems.~~ As all water-tight doors and hatches are to remain in a closed position, no emergency operating procedures or plant Technical Specifications (plant shutdown),

which are discussed in Subsection 2.4S.14, are required for implementation of flood protection measures.