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2.4.6 Probable Maximum Tsunami Hazards

The Clinch River Nuclear (CRN) Site is located more than 300 miles (mi) from the nearest seacoast. In addition, the site finish grade elevation is at 821 feet (ft) North American Vertical Datum of 1988 (NAVD88) (821.4 ft National Geodetic Vertical Datum of 1929 [NGVD29]). Thus, the site is not subject to any tsunami events originated from the ocean. Potential flooding of the site by a tsunami event originating in the adjacent water bodies is addressed in the following.

Faults and surface deformation in the vicinity of the CRN Site (within 25 mi of the site) and in the site region (within 200 mi of the site) are described in [Subsections 2.5.1](#) and [2.5.3](#). As summarized in [Subsection 2.5.3](#), there are no capable faults within the site region, and there is negligible potential for tectonic fault rupture within the site vicinity. Therefore, it is unlikely that a tsunami in the Watts Bar Reservoir or in other nearby water bodies could be triggered due to a vertical displacement at the ground surface.

Available geologic mapping, aerial photography, and high-resolution digital elevation data, as evaluated in [Subsection 2.5.1.2.8](#), revealed one small, shallow landslide within the site location, along the northeastern edge of the site peninsula. Based on the description in [Subsection 2.5.1.2.8](#), the potential for landslide as a tsunami source at the site is also expected to be low.

For the upstream water bodies, in the unlikely event that a tsunami wave is generated in Norris Reservoir and/or Melton Hill Reservoir, due to seismological or geological causes, and overtops the dams, the resulting flood elevation would not affect the safe functioning of the CRN Site. If the tsunami overtopping causes a dam failure, the resulting flood flows at the site would be bounded by the dam break flows evaluated in [Subsection 2.4.4](#), which indicates that the worst-case dam break flooding is due to a sunny day breach of Norris Dam.

For the downstream water body, which is Watts Bar Reservoir, the reservoir normal maximum operating pool level (occurring in summer) is 740.6 ft NAVD88 (741 ft NGVD29) as described in [Subsection 2.4.11](#). The Watts Bar Reservoir average bottom elevation near the Watts Bar Dam, where the water depth is typically deeper, is approximately 700 ft NAVD88. This results in a water depth of about 41 ft at the normal maximum operating pool level. Because the CRN Site is located approximately 50 river miles upstream of the Watts Bar Dam and 80 ft above the reservoir normal maximum operating pool level, any landslide-generated tsunami in the reservoir, with water depth of about 41 ft near the dam, is unlikely to affect the safe functioning of the CRN Site.