

2.8 NOISE

Ambient noise is the all-encompassing sound associated with a given environment at a specified time. It is generally a composite of sound from numerous sources, both near and far away, and in many directions. In 2013, a noise assessment was conducted in the vicinity of the Clinch River Nuclear (CRN) Site. The survey was conducted during July 14 through July 17, 2013, and December 17 through December 18, 2013. Ambient noise within the CRN Site was observed to come from various sources including vehicle traffic, bioacoustical sources (e.g., general wildlife, birds, insects, and humans), the natural environment (e.g., wind through foliage and rain), and mechanical sources (e.g., construction/industrial equipment). Within the surrounding local community, ambient noise was observed to originate from various sources including vehicle traffic, bioacoustical sources (i.e., general wildlife, livestock, birds, insects, and humans), the natural environment (i.e., wind through foliage and rain) and mechanical sources (i.e., farming equipment and watercraft/boating). Although the occurrence of these intermittent sources is difficult to predict, they are the primary contributors to ambient noise within the area. The spatial relationship between a noise source and receptor and differences in both terrain and vegetation may cause variations in ambient noise conditions at each noise receptor location. (Reference 2.8-1)

Site visits were conducted and aerial photography and maps were reviewed to identify nearby locations with potential sensitivity to noise within a 5-mile (mi) radius of the CRN Site. Potentially sensitive receptors identified outside of the CRN Site include residences, churches, cemeteries, facilities for outdoor/community use, schools, and National Register of Historic Places (NRHP)-listed sites. The sensitive receptors are shown in Figure 2.8-1 (Reference 2.8-1).

Within a 1-mi radius of the CRN Site, potential sensitive receptors include:

- 150 residences
- 1 church
- 2 schools (one private school and one historical school location)
- 8 cemeteries
- 1 facility for outdoor/community use

No NRHP-listed historic sites were identified within the 1-mi buffer. The Hensley Cemetery is located on the CRN Site and has conditional access; the remaining identified cemeteries are offsite. The identified community facility is the Bradbury Community Center.

Between 1 and 5 mi of the CRN Site, potential sensitive receptors include:

- 22 churches
- 10 schools (six of which are historic)

- 3 facilities for outdoor/community use
- 4 NRHP-listed sites

Residences and cemeteries were not individually counted beyond the 1-mi radius, although numerous examples of each are present within this distance from the CRN Site. The identified community facilities are the Gallaher Recreation Area, Soaring Eagle Campground, and the Melton Hill Dam Sustainable Recreation Area.

An ambient noise survey was conducted at the CRN Site from July 14 through July 17, 2013, and December 17 through December 18, 2013. Nine sampling locations were selected to provide a general representation of ambient sound levels within the 5 mi area around the CRN Site.

- Location 1: Near the center of the CRN Site, within the intersecting easements of the Bull Run FP to Watts Bar NP 500 kV transmission line and the Kingston FP to Fort Loudon HP 161 kV transmission line
- Location 2: The southeast area of the CRN Site, adjacent to the Clinch River arm of the Watts Bar Reservoir, within the easement of the Kingston FP to Fort Loudon HP 161 kv transmission line, just northwest of River Road
- Location 3: Northeast of the CRN Site, on the west side of Blackburn Lane in a residential area
- Location 4: Northwest of the CRN Site, at the Gallaher Recreation Area boat ramp
- Location 5: West of the CRN Site, on the south side of the intersection of Chestnut Ridge Road and Smith Hill Lane in a residential area
- Location 6: Southwest of the CRN Site, on the northwest side of Speers Road in a residential area
- Location 7: East of the CRN Site, on the west side of Blackburn Lane in a residential area
- Location 8: South of the CRN Site, at Soaring Eagle Campground tent area, near Caney Creek
- Location 9: East of the CRN Site, at Melton Hill Dam Sustainable Recreational Area

Locations used for measuring sound levels are shown in Figure 2.8-1. Figure 2.8-1 also shows the distances between these sampling locations and the CRN Site center point. Publicly accessible locations were selected to represent noise levels in nearby communities. (Reference 2.8-1)

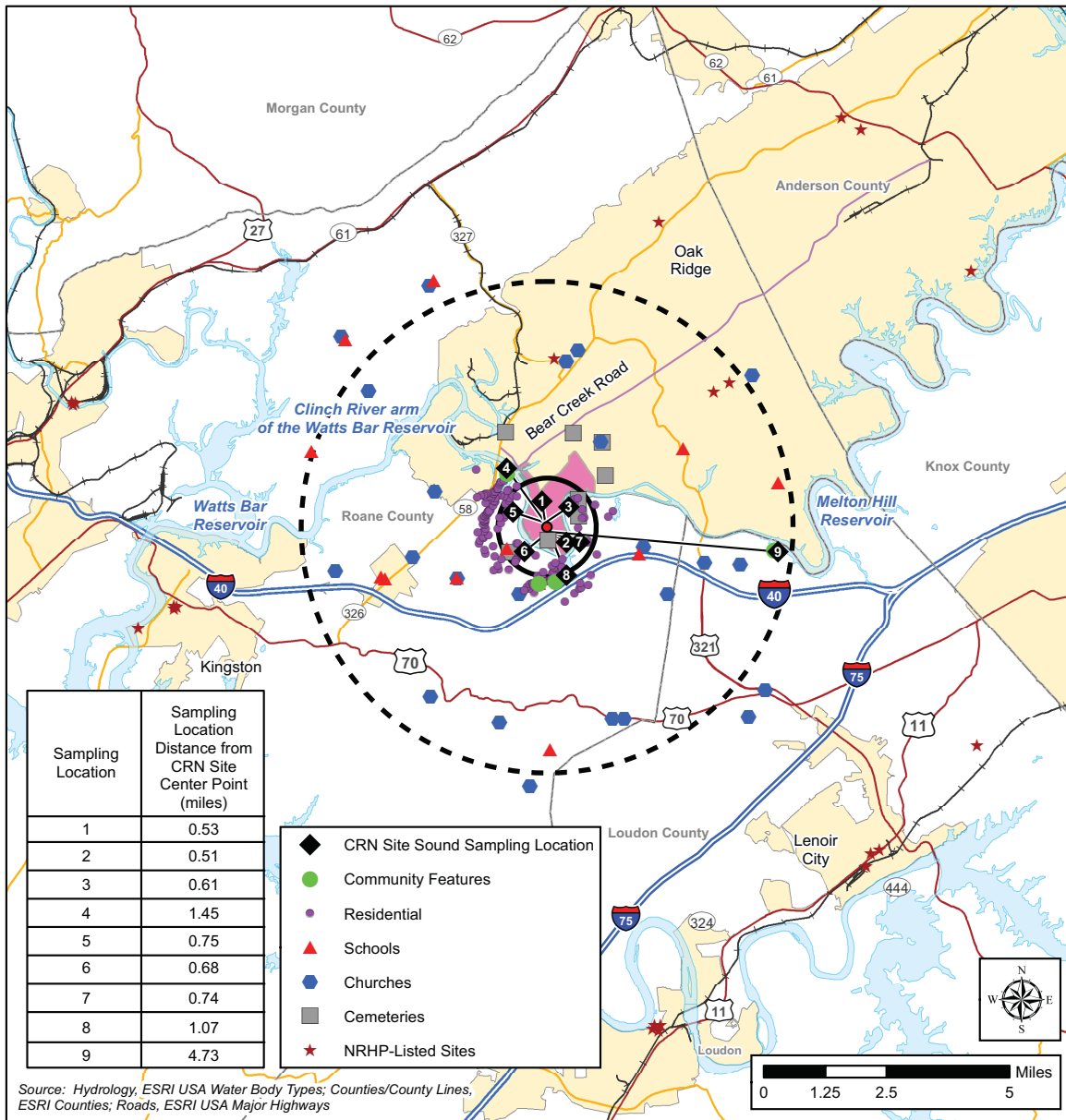
The ambient noise assessment concluded that sound levels onsite ranged between 46 and 48 A-weighted decibels (dBA) during the daytime and between 41 and 49 dBA during the nighttime. The Day-Night Average Sound Level (DNL) ranged between 49 and 55 dBA. The DNL is the sound level average over a 24-hour period used to define the level of average noise exposure to

a community during that time period. Within this calculation, an additional 10 decibels (dB) is added to nighttime (10 PM to 7 AM) sound levels to account for the increased sensitivity of the community to nighttime noise. Offsite sound levels ranged between 42 and 63 dBA during the daytime and between 35 and 58 dBA during the nighttime. The offsite DNL ranged between 51 and 64 dBA. (Reference 2.8-1)

2.8.1 References

Reference 2.8-1. AECOM, "Final Clinch River Site Ambient Noise Assessment Technical Report - Revision 1," Tennessee Valley Authority, April, 2014.

Clinch River Nuclear Site
 Early Site Permit Application
 Part 3, Environmental Report



Source: Hydrology, ESRI USA Water Body Types; Counties/County Lines, ESRI Counties; Roads, ESRI USA Major Highways

Legend

- CRN Site Center Point
- Counties
- Railroad
- Bear Creek Road
- Noise Distance
- Rivers and Lakes
- Interstate
- CRN Site
- 1 Mile Radius
- Highway
- City/Town Boundaries
- 5 Mile Radius
- Major Road

Figure 2.8-1. Ambient Noise Measurement Locations