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ENCLOSURE 2

Supplemental Historic and Cultural Resource Information

ENCLOSURE 2

By letter dated May 12, 2016 (Reference 1), Tennessee Valley Authority (TVA) submitted an application for an early site permit for the Clinch River Nuclear (CRN) Site in Oak Ridge, TN. Subsequent to the submittal of the application, and consistent with interactions with NRC staff, TVA identified certain aspects of the application that it intends to supplement. By letter dated August 11, 2016 (Reference 2), TVA provided a plan for submitting the identified supplemental information.

This enclosure provides supplemental information related to historic and cultural resources in the vicinity of the Clinch River (CR) Small Modular Reactor (SMR) Project Area of Potential Effect (APE) to support the NRC staff's review. This enclosure also includes markups of the affected Environmental Report (ER) sections. These changes will be incorporated into a future revision of the early site permit application (ESPA).

Supplement Item (from Reference 2)

TVA will provide supplemental information discussing the historic and cultural significance of the Melton Hill Dam and the expanded APE.

TVA will provide the staff with a copy of the Programmatic Agreement (PA) executed between TVA and the Tennessee State Historic Preservation Office (SHPO), including any related consultation correspondence. In addition, TVA will provide copies of the cultural resource reports with a request to withhold sensitive information contained therein.

Supplemental Information

The Melton Hill Dam (including the spillway) is a contributing structure to the Melton Hill Hydroelectric Project. TVA is currently preparing to nominate the Melton Hill Hydroelectric Project as a National Register of Historic Places District.

TVA in consultation with the SHPO have executed a PA to address the management of cultural resources affected by the CR SMR Project. The PA was initially signed in August 2015 and was later revised and signed in April 2016 by TVA and May 2016 by the SHPO. In August 2016, TVA consulted with SHPO and obtained their agreement to expand the CR SMR Project APE to include the Melton Hill Dam and a 0.5-mile (mi) radius around the dam.

As discussed in ER Subsection 3.4.2.5, in order to maintain acceptable thermal limits for the cooling system, a bypass capable of providing a continuous flow of approximately 400 cubic feet per second may be installed at Melton Hill Dam. As discussed in ER Subsection 4.1.3.2, the nature of the modifications to the Melton Hill Dam have not been finalized. TVA is considering a number of alternatives for providing additional flow. Some of the alternatives could require changes at Melton Hill Dam. Detailed plans for a dam modification, if needed, would not be proposed until a reactor design is selected. TVA will adhere to and comply with the stipulations of the PA with respect to modifications of the Melton Hill Dam. Therefore, impacts to historic structures as a result of preconstruction and construction activities associated with the CR SMR Project would be SMALL to MODERATE. Implementation of the mitigation measures as stipulated in the PA would minimize the potential for LARGE impacts to historic structures.

A discussion of the Melton Hill Dam, its status as a historic property, and a description of the prospective changes that may be required to the dam is being added to ER Subsection 2.5.3.

ENCLOSURE 2

A discussion of the potential for historic and cultural resource impacts associated with modifications to the Melton Hill Dam is being incorporated into ER Subsections 4.1.3, 5.1.3, and 5.8.3.1, and ER Chapter 10.

The APE for the CR SMR Project is being expanded to include the Melton Hill Dam and a 0.5-mi radius around the dam. Consequently, a new APE, the CR SMR Project archaeological APE, has been defined as the area within which archaeological surveys were conducted. Corresponding changes related to the APE discussion and an evaluation of impacts within the APE are being incorporated into ER Subsections 4.1.3, 4.7.5.3, 5.1.3, and 5.8.3.1, 5.11.6, and ER Chapter 10.

ER Table 2.5.3-1 is being revised with the addition of the Melton Hill Hydroelectric Project/Melton Hill Dam to the list of aboveground historic properties within a 10-mi radius of the CRN Site.

The APE shown on ER Figure 2.5.3-2 is being modified to include the Melton Hill Dam portions of the APE, and the legends on ER Figures 2.5.3-1 and 2.5.3-3 are being modified to clarify the portion of the APE shown on each figure.

ER Subsections 2.5.3, 4.1.3, and 5.1.3 are being revised to reflect the additional consultation that occurred with the SHPO and the changes made to the PA.

In addition to the changes above, the last paragraph of ER Subsection 2.5.3.1 is being revised to describe the improvements to the barge terminal as a "refurbishment," consistent with discussions of the improvements being made to the barge terminal elsewhere in the ER. ER Subsections 2.5.3.8 and 2.5.3.9 are being renumbered as 2.5.3.7.1 and 2.5.3.7.2, respectively, to correct a subsection numbering error. Subsequent subsections are being renumbered accordingly.

Enclosure 3 to this letter provides copies of the correspondence with Native American tribes regarding the cultural resources consultation associated with the proposed CR SMR Project. These letters will be added to ER Appendix A in a future revision of the ESPA.

Enclosure 4 to this letter provides the proprietary version of the ER Subsection 2.5.3 markups.

Enclosure 5 to this letter provides a CD-ROM containing the proprietary version of the cultural resource reports describing the cultural resource surveys conducted at and in the vicinity of the CR SMR Project APE and a proprietary version of the PA between TVA and the Tennessee SHPO.

Enclosure 6 to this letter provides a CD-ROM containing the non-proprietary version of the cultural resource reports and PA.

ENCLOSURE 2

The following markups reflect the revisions being made to ER Subsection 2.5.3 (including Table 2.5.3-1 and Figures 2.5.3-1, 2.5.3-2, and 2.5.3-3). Strikethrough text indicates deleted text. Underlined text indicates text added.

2.5.3 Historic Properties

This section of the Environmental Report (ER) focuses on a description of the existing archaeological resources and historic properties on and immediately adjacent to the Clinch River Property (Figure 2.5.3-1) and the Melton Hill Dam and as well as the historic properties within a 10-mile (mi) radius of the center of the Clinch River Nuclear (CRN) Site (Figure 2.5.3-2). The 10-mi radius includes portions of Anderson, Knox, Loudon, Roane, and Morgan Counties as shown on Figure 2.5.3-2. As defined by Title 36 of the *Code of Federal Regulations* (36 CFR) 800.16 (l)(1), historic properties are those properties deemed eligible for listing or that are already listed on the National Register of Historic Places (NRHP).

As a federal project requesting a permit from a federal agency, the Clinch River (CR) Small Modular Reactor (SMR) Project is subject to review and consultation under Section 106 of the National Historic Preservation Act (16 U.S. Code [USC] § 470 et seq.) and its implementing regulations 36 CFR Part 800. Additionally the CR SMR Project is subject to the Native American Graves Protection and Repatriation Act (25 USC 3001 et seq.), the Archaeological Resources Protection Act (16 USC 470aa-mm), the American Indian Religious Freedom Act (42 USC 1996), and the Archaeological and Historic Preservation Act (16 USC 469).

A total of 59 recorded archaeological sites, four isolated finds (IF-1 [2015], IF-1 [2011], IF-2, IF-3), one non-site locality (NS-1), and one cemetery have been identified within or immediately adjacent to the approximately 1305-acre (ac) CR SMR Project archaeological Area of Potential Effect (CR SMR Project archaeological APE). Some of these sites are solely prehistoric, some solely historic, and others contain both prehistoric and historic components. None of these archaeological sites are currently listed on the NRHP.

The Tennessee Valley Authority (TVA) determined a ~~one-half~~ 0.5-mile radius surrounding the area in which vegetation clearing would take place at the CRN Site as the historic architectural APE (CR SMR Project historic architectural APE). TVA identified no historic architectural resources listed or eligible for listing on the NRHP within the CR SMR Project historic architectural APE.

No NRHP-listed properties are located on or immediately adjacent to the CRN Site as shown in Figure 2.5.3-2. Twenty-six NRHP-listed properties are located within a 10-mi radius of the center of the CRN Site as shown in Figure 2.5.3-2 and described in Table 2.5.3-1. In Anderson County, there are three aboveground NRHP-listed properties within the 10-mi radius. The NRHP-listed Woodland-Scarboro Historic District also in Anderson County contains another 622 aboveground structures that contribute directly to the significance and integrity of the district. An additional nine aboveground NRHP-listed properties are located in Loudon County within the 10-mi radius. Eleven aboveground NRHP-listed properties and two historic districts are located in Roane County within the 10-mi radius. The two Roane County historic districts contain another 131 buildings and 33 structures that contribute directly to the significance and integrity of the district.

ENCLOSURE 2

TVA identified the need for a future minor modification to the flow of the Clinch River in the project vicinity. A number of alternatives are being considered for providing the additional required flow; some could require changes at the Melton Hill Dam. TVA is currently preparing to nominate the Melton Hill Hydroelectric Project/Melton Hill Dam, completed in 1964, as a National Register of Historic Places District. The proposed district contains eight buildings, two sites, and five structures, including the concrete dam, powerhouse, navigational lock, a lock operation building, and a visitor's building, that contribute directly to the significance and integrity of the district. The draft application states that the Melton Hill Hydroelectric Project meets National Register criteria A and C for its historical significance as an integral part of the TVA Hydroelectric Project. It is significant for the improvement of navigation, expansion of energy, and improvement of quality of life through transmission of electricity, control of seasonal flooding and creation of public recreational facilities. (Reference 2.5.3-65)

In April 2016, the Keeper of the National Register approved TVA's multiple properties documentation form for the "Historic Resources of the TVA Hydroelectric System, 1933-1979". The Melton Hill Hydroelectric Project/Melton Hill Dam is one of these documented properties. This documentation process was the first step completed in the individual nomination process for each hydroelectric project. (Reference 2.5.3-66)

Archaeological surveys have been conducted in the past at the Melton Hill Dam reservation. At present no ground-disturbing activities are anticipated in the vicinity of the Melton Hill Dam. Therefore, the dam has not been included in the CR SMR Project archaeological APE. The potential changes at the Melton Hill Dam could result in aesthetic or visual changes to the dam. However, the nature of the potential changes needed are currently unknown. Therefore, an historic architecture APE will be established for the Melton Hill Dam at a future date and assessed at that time.

In August 2016, TVA consulted with the SHPO regarding an expansion to the CR SMR Project APE to include Melton Hill Dam and a 0.5-mi radius surrounding the dam (Reference 2.5.3-67).

The following subsections describe the existing archaeological resources and historic properties on and immediately adjacent to the Clinch River Property.

2.5.3.1 Cultural Resource Surveys

The CR SMR Project APE ~~is approximately 1305 ac and~~ includes the approximately 1200-ac Clinch River Property, ~~and an additional approximately 105 ac northwest of the property near the CRN Site entrance and along Bear Creek Road and Tennessee State Highway (TN) 58, the Melton Hill Dam, and a 0.5-mi radius around the Melton Hill Dam.~~ The CR SMR Project archaeological APE is shown in Figure 2.5.3-1. Between the years of 2003 and 2015, the entirety of the CR SMR Project archaeological APE was surveyed (Reference 2.5.3-1; Reference 2.5.3-2). TVA conducted four archaeological surveys (one in 2003, two in 2011, and one in 2015) including all parts of the CR SMR Project archaeological APE with the exceptions of approximately 14.6-ac of U.S. Department of Energy (DOE) land in the northwestern part of the CR SMR Project archaeological APE that had been included in a recent (2008-2010) DOE archaeological survey, ~~and the Melton Hill Dam district.~~ Additionally, several previous cultural resource surveys have been conducted at and in the vicinity of the CR SMR Project archaeological APE in conjunction with various planned development activities.

The various surveys that have occurred at the CRN Site are described in this subsection. The areas investigated for the majority of these past surveys are shown on Figure 2.5.3-3.

ENCLOSURE 2

The first recorded archaeological investigation in the Clinch River valley occurred in 1886

[Exempted from Disclosure by Statute] Exempted from Disclosure by Statute
a Native American mound complex with associated camps, villages, and burials was reported. The investigation team also observed the presence of two mounds [Exempted from Disclosure by Statute] (Reference 2.5.3-3)

In 1941, five archaeological sites were recorded along the river within the CR SMR Project archaeological APE. This 1941 survey is the first record of these five sites: 40RE104, 40RE105, 40RE106, 40RE107, and 40RE108 (Reference 2.5.3-3).

A 1972 survey reinvestigated the five sites originally identified in 1941 and recorded five additional sites. The authors recommended no further investigation for sites 40RE104 and 40RE106. Further investigation of sites 40RE105, 40RE107, and 40RE108 was recommended. (Reference 2.5.3-3) Additionally, the authors recommended the preparation of drawings and photographs of five additional sites: 40RE119, 40RE120, 40RE121, 40RE122, and 40RE123 (Reference 2.5.3-4; Reference 2.5.3-3).

A January 1973 survey resulted in the production of plan maps and identification of additional historic features at sites 40RE120 and 40RE121 (Reference 2.5.3-5). In November 1973, it was discovered that the historic log structure at 40RE123 had been completely destroyed by parties unknown (Reference 2.5.3-6).

TVA conducted a survey to assess NRHP eligibility of the area outside, but in the vicinity of the CR SMR Project archaeological APE, in 1973. During this survey, the closest NRHP-listed site identified was located 4 mi from the CR SMR Project archaeological APE boundary. A field survey of the surrounding area identified five locations containing structures potentially eligible for listing on the NRHP. (Reference 2.5.3-7)

In the winter of 1973 to 1974, researchers investigated sites 40RE108 and the newly identified site 40RE124. The authors recommended further investigation of both of these sites. (Reference 2.5.3-8; Reference 2.5.3-9)

A survey to assess potential historic sites within the CR SMR Project archaeological APE was conducted in spring 1974 utilizing information from a 1940 map. During the 1974 survey, 12 land parcels were investigated within the CR SMR Project archaeological APE. Whole or partial historic structures were identified in nine locations. One additional structure was found to have been moved from its 1940 location within the CRN Site to a new location a short distance away within the CRN Site sometime before 1974. Finally, an additional historic feature was located within the CR SMR Project archaeological APE, but outside of the area covered on the 1940 map. The authors of the 1974 survey recommended additional investigation of these sites. (Reference 2.5.3-6)

Site 40RE129 was first identified and investigated in 1974, at which time it was thought to be a prehistoric earthen burial mound. Site 40RE129 [Exempted from Disclosure by Statute] was not identified in any previous surveys, despite its prominent location which would have been easily viewed during the 1941 survey.

ENCLOSURE 2

The 1974 investigation determined this site contained cultural material suggesting it is an historic Anglo-American feature constructed in the first half of the 20th century. It was constructed for an unknown reason, likely using material from the immediate vicinity. (Reference 2.5.3-10) Tennessee site records indicate the site number for 40RE129 has been vacated (Reference 2.5.3-11).

Cultural resources surveys conducted on and around the CR SMR Project archaeological APE in 1974 and 1975 identified four previously unrecorded sites (Reference 2.5.3-12). The 1974 survey identified site 40RE125. The 1975 survey resulted in the identification of sites 40RE138, 40RE139, and 40RE140. (Reference 2.5.3-13) Further investigation of site 40RE138 was recommended due to the significance and extent of the site. [

] Exempted from Disclosure by Statute No further work was recommended at sites 40RE125 and 40RE139. (Reference 2.5.3-14)

A survey in the winter of 1981 to 1982 investigated portions of the CR SMR Project archaeological APE not previously surveyed. The 1981-1982 survey resulted in the identification of 17 previously unrecorded sites and the redefinition of three previously recorded sites (40RE106, 40RE125, and 40RE128 [this site was reported to have been previously investigated by Schroedl in 1972 but was not included in the survey report]). (Reference 2.5.3-13) The 17 new sites were 40RE151, 40RE152, 40RE153, 40RE154, 40RE155, 40RE156, 40RE157, 40RE158, 40RE159, 40RE160, 40RE161, 40RE162, 40RE163, 40RE164, 40RE165, 40RE166, 40RE167. The authors recommended no further investigation for sites 40RE151, 40RE152, 40RE153, 40RE154, 40RE155, 40RE156, 40RE157, 40RE158, 40RE159, 40RE160, 40RE161, 40RE162, 40RE163, and 40RE164. (Reference 2.5.3-14) The authors also recommended that in the event of potential disturbance, sites 40RE166, 40RE167 and two unassigned loci (L-19 and L-20) be further investigated. The authors also recommended Site 40RE165 was a "significant cultural resource." (Reference 2.5.3-13)

A survey was completed in 1995 in the northwestern portion of the CR SMR Project archaeological APE during the planning stages for proposed modifications to TN 58 and TN 95. This survey identified seven archeological sites within the new right of way needed for the road modifications. Three of these sites are in the CR SMR Project archaeological APE: 40RE135, 40RE138, and 40RE233. Sites 40RE135 and 40RE138 were originally discovered by Fielder in 1974 and 1975, respectively. During the 1995 survey, profile cuts were made in the riverbanks in the vicinity of Gallaher Bridge. No pre-historical artifacts were found; only historical items that were presumed to be from the construction of the bridge in the 1960s were found. Site 40RE233 was recommended as potentially eligible for the NRHP under Criterion A; further investigation was recommended. Site 40RE232 was discovered during the 1995 survey. Site 40RE232 is located outside of but adjacent to the CR SMR Project archaeological APE. The survey was unable to determine NRHP-eligibility. (Reference 2.5.3-15)

In 2002, a survey of a low-lying area in the central portion of the CR SMR Project archaeological APE identified three previously unrecorded archaeological sites in the CR SMR Project archaeological APE: 40RE547, 40RE548, and 40RE549. The authors recommended no further investigation of sites 40RE547 and 40RE548. Site 40RE549 was recommended as potentially eligible for listing on the NRHP and the authors recommended additional site investigation prior

ENCLOSURE 2

to any future construction or use. Sites 40RE121 and 40RE122 were reinvestigated but no further investigation was recommended. During this survey the authors unsuccessfully attempted to relocate 40RE156, 40RE157, and 40RE158 and additional investigation was deemed unnecessary (Reference 2.5.3-16; Reference 2.5.3-15).

A Phase I and Phase II survey and testing of 40RE233 was performed in January 2008, May 2009, and July 2010. Site 40RE233 is known historically as the Happy Valley temporary worker housing area. The site was occupied by workers at the K-25 Oak Ridge Gaseous Diffusion Plant, part of the Manhattan Project during World War II. Researchers recommended that Site 40RE233 is eligible for the NRHP under Criteria A, C, and D. Site 40RE219, the Wheat Community African Burial Ground, was also reinvestigated and further investigation of the immediate vicinity of the cemetery was recommended if ground disturbing activities were to occur in this area. (Reference 2.5.3-17)

In 2011, TVA performed two archaeological cultural resource surveys (Reference 2.5.3-11). The archaeological portion of the surveys covered the majority of the approximately 1200-ac Clinch River Property managed by TVA. The surveys did not reexamine the portion of the Clinch River Property investigated in the 2002 survey. In conjunction with the archaeological surveys, TVA also performed an assessment of the architectural resources within the CR SMR Project historic architectural APE, the 0.5-mi radius centered on the previous Clinch River Breeder Reactor Project (CRBRP) construction area (Reference 2.5.3-18).

The first of the two surveys occurred in the winter of 2011 and consisted of an archaeological survey of 687-ac within the Clinch River Property. The purpose of this survey was for site investigations and infrastructure improvements. The winter 2011 survey consisted of a Phase I archaeological survey of approximately 157 ac and identified five previously unrecorded archaeological sites: 40RE585, 40RE586, 40RE587, 40RE588, and 40RE589. The authors recommended sites 40RE585, 40RE586, 40RE587, and 40RE589 as ineligible for listing on the NRHP and recommended no further work at these sites. Site 40RE588 is the historic Hensley Cemetery, which the authors recommended as ineligible for the NRHP. However, because of the presence of human burials, the authors recommended this site be avoided. (Reference 2.5.3-11)

The winter 2011 survey also reinvestigated 12 previously identified sites: 40RE106, 40RE107, 40RE108, 40RE120, 40RE129, 40RE152, 40RE153, 40RE154, 40RE159, 40RE163, 40RE165, and 40RE166. The authors recommended that sites 40RE106, 40RE107, 40RE108, 40RE165, and 40RE166 are eligible for the NRHP and should be avoided. If it is not possible to avoid these sites, the authors recommend development of a data recovery plan for the affected sites. The authors concluded that 40RE120, 40RE152, 40RE154, and 40RE163 are ineligible for the NRHP and no further work is recommended at these sites. As described previously, the site number for 40RE129 has been vacated. The authors of the winter 2011 survey recommended no further work at 40RE129. The authors were unable to locate site 40RE159 and assumed it was destroyed during previous site activities. No further work was recommended at 40RE159. The authors recommended no further work for site 40RE153 because it was located outside of the winter 2011 survey area for the site investigations and infrastructure improvements work. (Reference 2.5.3-11) TVA consulted with the State Historic Preservation Officer (SHPO) in February 2011 with regard to the findings of the winter 2011 survey. The SHPO concurred with TVA's determinations on NRHP eligibility.

ENCLOSURE 2

The second survey occurred in the spring of 2011. The purpose of this survey was to investigate the balance of the Clinch River Property. The spring 2011 survey investigated 35 sites, including 15 previously unrecorded sites: 40RE590, 40RE591, 40RE592, 40RE593, 40RE594, 40RE595, 40RE596, 40RE597, 40RE598, 40RE600, 40RE601, 40RE602, 40RE605, 40RE606, and 40RE607 in addition to three isolated finds. The authors recommended 12 of the investigated sites as potentially eligible for the NRHP (40RE104, 40RE105, 40RE106, 40RE108, 40RE124, 40RE128, 40RE140, 40RE167, 40RE549, 40RE595, 40RE600, and 40RE601). The remaining 23 sites and the three isolated finds were recommended as ineligible for the NRHP (40RE122, 40RE123, 40RE125, 40RE151, 40RE153, 40RE155, 40RE160, 40RE161, 40RE162, 40RE163, 40RE164, 40RE590, 40RE591, 40RE592, 40RE593, 40RE594, 40RE596, 40RE597, 40RE598, 40RE602, 40RE605, 40RE606, 40RE607, IF-1 (2011), IF-2, and IF-3). The spring 2011 survey also investigated two caves. No cultural material was identified in these caves; therefore, the authors recommended no further work for these locations. (Reference 2.5.3-1) TVA consulted with the SHPO in August 2011 regarding the results of the spring 2011 survey. The SHPO concurred with TVA's determinations on NRHP eligibility and requested that the 12 potentially-eligible sites identified in the survey be avoided by all ground-disturbing activities or subjected to Phase II archaeological testing investigations. (Reference 2.5.3-19)

In August 2011 TVA performed a Phase I architectural survey of the CR SMR Project historic architectural APE, the 0.5-mi radius around the previously disturbed CRBRP area. This previously disturbed area was chosen as a focal point because it was defined as the area most likely to be impacted by the CR SMR Project. A total of approximately 1289 ac was evaluated during this survey. The architectural survey began with a records search of Roane County, NRHP, and Tennessee Historical Commission records followed by the field survey. The historic architectural survey identified no previously unrecorded architectural resources with the CR SMR Project historic architectural APE. Based on the results of the survey, researchers recommended no further investigation of aboveground properties in association with the proposed action. (Reference 2.5.3-18)

An additional survey was conducted in 2015. The purpose of this survey was to investigate the Barge/Traffic Area (101 ac), which is the offsite area extending from the entrance to the CRN Site to the area at the junction of TN 58 and Bear Creek Road. The ~~construction~~refurbishment of a barge terminal and roadway modifications are planned in the Barge/Traffic Area. This survey included the reinvestigation of four sites (40RE135, 40RE138, 40RE139, and 40RE202) and the discovery of one isolated find (IF-1) and one non-site locality. This investigation included an area of approximately 110 ac, which included the Barge/Traffic Area and a portion of the Clinch River Property near the site entrance on the northwest side of Grassy Creek. The findings indicated that avoidance or further investigation is warranted for 40RE138. The other sites (40RE135, 40RE139 and 40RE202), IF-1, and the non-site locality were recommended as ineligible for the NRHP. Site 40RE233 is located within the 110-ac area investigated; however, reinvestigation of the site was not conducted because a thorough investigation had been conducted of the site in 2010-2011. Site 40RE233 is discussed in further detail in Subsection 2.5.3.5. (Reference 2.5.3-2)

2.5.3.2 Consultations with the State Historic Preservation Office and Native American Tribes

Fifty-nine recorded archaeological sites, four isolated finds, one non-site locality, and one cemetery have been identified within or immediately adjacent to the approximately 1305-ac CR SMR Project archaeological APE. The prehistoric sites are discussed in Subsection 2.5.3.3, the multi-component prehistoric and historic sites are discussed in Subsection 2.5.3.4, and the

ENCLOSURE 2

historic sites are discussed in Subsection 2.5.3.5. Table 2.5.3-2 lists the archaeological and historic sites within and immediately adjacent to the CR SMR Project APE identified during the surveys described above. A small number of cultural resource sites have been identified in the vicinity of the CR SMR Project APE, including a cave located across the river, historic cemeteries in the surrounding area, and some prehistoric and historic sites on TVA and DOE land. All sites with the potential to be impacted by the current undertaking are discussed in the subsections below and in Subsections 4.1.2 and 5.1.3.

TVA consulted with the Tennessee SHPO and federally-recognized Native American tribes regarding the 2002 cultural resources survey, the two archaeological surveys conducted in 2011, the 2015 survey, and the 2011 architectural survey. TVA consulted on a government-to-government basis with the Eastern Band of Cherokee Indians, Cherokee Nation, Chickasaw Nation, Alabama Quassarte Tribal Town, Muscogee (Creek) Nation, Alabama-Coushatta Tribe of Texas, Thlopthlocco Tribal Town, Seminole Nation of Oklahoma, Eastern Shawnee Tribe of Oklahoma, Absentee Shawnee Tribe of Oklahoma, Kialegee Tribal Town, United Keetoowah Band of Cherokee Indians in Oklahoma, Seminole Tribe of Florida, Shawnee Tribe, and Poarch Band of Creek Indians. The SHPO has concurred with TVA's determinations on the eligibility of the 59 archaeological sites and one cemetery that have been identified within the Clinch River Property. TVA and the SHPO agree that 16 of the archaeological sites (40RE104, 40RE105, 40RE106, 40RE107, 40RE108, 40RE124, 40RE128, 40RE138, 40RE140, 40RE165, 40RE166, 40RE167, 40RE549, 40RE595, 40RE600, and 40RE601) are potentially eligible for listing in the NRHP, and the remaining 44 archaeological sites, four isolated finds, one non-site locality, and the cemetery are ineligible for listing in the NRHP. The SHPO also concurred with TVA's determinations that no architectural resources listed on or eligible for listing on the NRHP are located within the CR SMR Project historic architectural APE. TVA in consultation with the SHPO have executed a Programmatic Agreement (PA) to address the management of cultural resources affected by the CR SMR Project. (Reference 2.5.3-20) The PA was initially signed in August 2015, was later revised and signed in April 2016 by TVA and May 2016 by the SHPO. In August 2016, TVA reinitiated consultation with the SHPO under Section I.A of the PA to expand the CR SMR Project APE to include the Melton Hill Dam and a 0.5-mi radius around the dam.

TVA also consulted with federally recognized tribes in or with cultural interest in the region. TVA received a reply from the United Keetoowah Band of Cherokee Indians in Oklahoma on August 29, 2011, who stated they had no objections to TVA's proposed undertaking. In April 2015, in response to notification from TVA regarding the expanded APE, the Muscogee (Creek) Nation responded they were unaware of any culturally significant sites within the project areas and concurred with TVA's determination that Site 40RE233 is eligible for the NRHP and would be avoided. In July 2015 TVA received a response from the United Keetowah Band of Cherokee Indians in Oklahoma acknowledging the PA. ER Appendix A includes letters sent to and received from regulatory agencies and Native American tribes regarding the cultural resources consultation associated with the proposed SMR project.

2.5.3.3 Prehistoric Archaeological Sites

A total of 39 of the recorded archaeological sites and three of the isolated finds within the CR SMR Project archaeological APE are prehistoric and are addressed in this subsection. An additional two of the recorded archaeological sites are multi-component prehistoric and historic and are discussed in Subsection 2.5.3.4.

ENCLOSURE 2

The 2003 and 2011 surveys revisited previously recorded sites in the CR SMR Project archaeological APE. Archaeological sites 40RE104, 40RE105, 40RE106, 40RE107, 40RE108, 40RE128, 40RE166, 40RE167, 40RE549, 40RE595, 40RE600, and 40RE601 contain intact subsurface archaeological deposits representative of prehistoric open habitation. TVA and SHPO agreed these sites are potentially eligible for listing on the NRHP under Criterion D of 36 CFR 60.4; TVA plans to avoid these sites if possible. If avoidance is not possible, further investigation may be required. (Reference 2.5.3-1)

One additional prehistoric site, 40RE138, was investigated in the 2015 survey. It is a previously recorded prehistoric multi-component (Paleoindian – Woodland periods) prehistoric site [Exempted from Disclosure by Statute]. In conjunction with pedestrian reconnaissance, systematic subsurface excavations, and geomorphological analyses, only a small portion of the site was identified during the 2015 survey. A portion of the site may extend [Exempted from Disclosure by Statute] but is covered by historic fill that made it impossible to determine the full extent of the site. Avoidance or additional investigation of 40RE138 is recommended in the event of ground disturbance. (Reference 2.5.3-2)

Site 40RE124 consists of the remains of a Late Woodland period mound containing intact subsurface archaeological deposits. It is also possible this site may contain human remains. TVA and SHPO agreed this site is potentially eligible for the NRHP under Criterion D of 36 CFR 60.4. TVA has agreed to avoid Site 40RE124 [Exempted from Disclosure by Statute]. (Reference 2.5.3-1)

Based on the studies performed, TVA has determined several of the prehistoric archaeological sites and the three prehistoric isolated finds are ineligible for listing on the NRHP because of a lack of research potential and lack of intact archaeological deposits. These sites generally consist of prehistoric open habitation and/or contain light scatter of lithic debitage and/or prehistoric ceramics. The sites include 40RE125, 40RE135, 40RE151, 40RE152, 40RE153, 40RE154, 40RE155, 40RE160, 40RE163, 40RE202, 40RE547, 40RE548, 40RE585, 40RE589, 40RE592, 40RE602, 40RE605, IF-1 (from the 2015 survey), and IF-2 and IF-3 (from the 2011 surveys). No further work is recommended at these sites. (Reference 2.5.3-1)

The 2003, 2011, and 2015 surveys were unable to relocate previously investigated prehistoric sites 40RE139, 40RE156, 40RE157, 40RE158, 40RE159, 40RE161, 40RE162, and 40RE164 (Reference 2.5.3-1; Reference 2.5.3-16; Reference 2.5.3-2; Reference 2.5.3-11). These sites are presumed destroyed by previous site activities [Exempted from Disclosure by Statute]. No further work at these sites was performed.

2.5.3.4 Multicomponent Archaeological Sites

Two sites, 40RE140 and 40RE165, include both prehistoric and historic archaeological resources. Site 40RE140 consists of [Exempted from Disclosure by Statute] containing intact prehistoric and historic archaeological resources. Prehistoric resources indicate this site was occupied during the Late Archaic and Early Woodland Periods. Historic resources include the remains of a moonshine still and a scattering of animal bone. Earlier surveys recovered human remains and intact subsurface deposits [Exempted from Disclosure by Statute]. Based on these findings, 40RE140 is potentially eligible for listing on the NRHP under Criterion D of 36 CFR 60.4. [

ENCLOSURE 2

Exempted from Disclosure by Statute (Reference 2.5.3-1) Site 40RE165 consists of a prehistoric open habitation with light scatter and lithic debitage and an historic fish weir and is potentially eligible for listing on the NRHP under Criterion D of 36 CFR 60.4. (Reference 2.5.3-11)

2.5.3.5 Historic Archeological Sites

Twenty-one of the recorded archaeological sites, one isolated find, and the one non-site locality identified within or immediately adjacent to the CR SMR Project archaeological APE are determined as historic sites or isolated finds. Two of these sites are multi-component prehistoric and historic and are discussed in Subsection 2.5.3.4. In addition to the identified historic sites, two historic roads, the Access Road and River Road shown on Figure 3.1-2, are located on the Clinch River Property. The Access Road that connects the interior of the CRN Site to Bear Creek Road is visible on aerial photographs from 1939. The River Road that circles the southern portion appears to have been constructed by 1952. This road is absent from a 1943 TVA land transfer map. It appears on an April 30, 1952 TVA aerial photograph, and on the 1953 editions of the U.S. Geological Survey (USGS) Bethel and Elverton 7.5-minute quadrangle maps. The road is labelled "Cane Island Patrol Road" on TVA's 1961 "D-stage" map, which documents land changes after the construction of Watts Bar Reservoir. No information is available that identifies which year the River Road was constructed, but the date can be bracketed between 1943 and 1952 based on the above information. The Access Road appears to have connected individual homesteads to Bear Creek Road. The River Road/Cane Island Patrol Road may have been associated with the K-25 Oak Ridge Gaseous Diffusion Plant during the Manhattan Project of World War II, given the decade of its construction and the name it was given. Both the Access Road and River Road are currently dirt/gravel roads that have been modified with the addition of culverts and grading (both during the CRBRP and at other times) since their original construction. The NRHP-eligibility for these roads has not been determined, but they most likely would not be eligible. Although the River Road, if constructed by the Atomic Energy Commission as part of the Manhattan Project, would be associated with events of historic significance, it no longer retains its integrity of association due to changes in land use that have taken place in the past six decades, nor its integrity of materials or workmanship due to the modifications. This subsection addresses the remaining historic sites.

Site 40RE233 is the Happy Valley temporary worker housing area, occupied by workers at the K-25 Oak Ridge Gaseous Diffusion Plant, part of the Manhattan Project during World War II. The site was occupied from 1943 to 1947. Population ranged from 9000 to nearly 15,000 workers during this period. Facilities at the site included hutments, barracks, trailers, a school, a commercial center, a theater, and recreation halls. Because of the secrecy surrounding all components of the Manhattan Project at the time, limited information exists about daily life at Happy Valley. Records that record information about Happy Valley include maps, photographs, archival records, and oral history interviews. Happy Valley is one of the largest and best preserved workers camps associated with the Manhattan Project. The site remains part of the DOE Oak Ridge Reservation and therefore possesses fair integrity of setting. Though the buildings and structures have been removed, the site has good archaeological integrity in that the substructural elements remain in place. The site retains strong integrity of workmanship, "it expresses the landscape and design" of the community and the remains of streets, utilities, building foundations, and other features can be matched up with maps of the camp. The loss of

ENCLOSURE 2

site architecture has impacted the integrity of feeling, however. The site retains a strong integrity of association with the Manhattan Project, a significant event in United States history. Researchers recommended that Site 40RE233 is eligible for the NRHP under Criteria A, C, and D. Site 40RE219, the Wheat Community African Burial Ground, was also reinvestigated and further investigation on the immediate vicinity of the cemetery was recommended if ground disturbing activities were to occur in this area. (Reference 2.5.3-17)

Site 40RE232 was discovered during the 1995 survey. This site is located outside of but adjacent to the CR SMR Project archaeological APE. This historic site was identified based on a posted sign identifying an inactive waste site, "Old Firehouse and Burn Area" "K-1085." The boundaries of the site are unknown. Because of the potential presence of surface and subsurface hazardous materials, no subsurface investigations were conducted. Because of the inability to investigate the site or to gain more detailed information about the site, the NRHP-eligibility has not been determined. (Reference 2.5.3-15)

Based on the survey findings, TVA and SHPO agreed 13 of the historic sites, one isolated find, and the one non-site locality are ineligible for listing on the NRHP due to a lack of research potential and intact archaeological deposits (Reference 2.5.3-20). Historic sites 40RE120, 40RE121, 40RE122, 40RE123, 40RE586, 40RE587, 40RE591, 40RE593, 40RE594, 40RE596, 40RE598, and one isolated find (IF-1, from the 2011 survey) consist of 19th to 20th century farmstead structural debris and historic artifacts (Reference 2.5.3-6; Reference 2.5.3-4; Reference 2.5.3-11). Sites 40RE590 and 40RE597 consist of historic artifact scatter including the remains of a 20th century moonshine still. (Reference 2.5.3-1) The non-site locality consists of five aboveground structural elements that do not appear to be more than 50 years of age. No further work is recommended for these thirteen sites, IF-1 (2011), and the non-site locality.

The historic Hensley Cemetery is site 40RE588. In 1972, this site was designated as site 40RE119; however, that site number was later reassigned to another offsite location (Reference 2.5.3-11). Generally, cemeteries are not eligible for the NRHP unless they contain the graves of persons of particular significance, distinctive design features, or from their association with historic events. The Hensley Cemetery fulfills none of these requirements and is therefore recommended as ineligible for inclusion in the NRHP.

However, due to the presumed presence of human remains, TVA has consulted with the SHPO regarding the Hensley Cemetery and has committed to avoiding the cemetery under the proposed undertaking. If the site cannot be avoided, any actions would be subject to Tennessee state law with respect to treatment of cemeteries. (Reference 2.5.3-11; Reference 2.5.3-19).

Three sites within the CR SMR Project archaeological APE consist of single or multiple stone mounds. In the 1974 survey site 40RE129 was determined to be a recent historic soil disturbance (Reference 2.5.3-10). The site number was vacated in the Tennessee state records (Reference 2.5.3-11). Two series of stone mounds are located at sites 40RE606 and 40RE607. A single disc plow blade was the only artifact recovered in one mound at each site. These mounds are presumed to be remnants from previous ridge clearing in association with mid-20th century farming activities and are assumed to be ineligible for listing on the NRHP. No further work is planned at these sites. (Reference 2.5.3-1)

ENCLOSURE 2

2.5.3.6 Caves

One cave, [] Exempted from Disclosure by Statute containing prehistoric and historic cultural material was identified during the 1975 survey. The 2011 survey also investigated two additional caves within the CR SMR Project archaeological APE, Rennies Cave and 2-Batteries Cave. No prehistoric or historic cultural material was located within these caves. No further archaeological work is planned with respect to these caves. [] Exempted from Disclosure by Statute

2.5.3.7 Historic Sites

As described above, no aboveground historic sites with intact standing structures were identified on the CRN Site during the previous surveys as being potentially eligible for listing, eligible for listing, or listed on the NRHP. However, within a 10-mi radius of the center point of the CRN Site, there are 23 individual NRHP-listed properties and three NRHP-listed historic districts as shown in Figure 2.5.3-2 and described in Table 2.5.3-1. In Anderson County, there are three aboveground NRHP-listed properties within the 10-mi radius. The NRHP-listed Woodland-Scarboro Historic District contains another 622 aboveground structures that contribute directly to the significance and integrity of the district. An additional nine aboveground NRHP-listed properties are located in Loudon County within the 10-mi radius. Eleven aboveground NRHP-listed properties and two historic districts are located in Roane County within the 10-mi radius. The two historic districts contain another 131 buildings and 33 structures that contribute directly to the significance and integrity of the district.

2.5.3.8 2.5.3.7.1 National Register of Historic Places Listed Sites

The NRHP is a list of buildings, districts, sites, structures, and objects significant to local, state, or national history. Properties may qualify for inclusion in the NRHP under one of four criteria:

- Criterion A: This criterion is associated with events that have made a significant contribution to the broad patterns of American history. This criterion includes literature, ethnic heritage, health/medicine, transportation, and many others.
- Criterion B: This criterion is associated with the life of significant persons. An example of an NRHP property nominated under Criterion B is George Washington's Mt. Vernon estate.
- Criterion C: This criterion is the embodiment of the distinctive characteristics of a type, period, or method of construction. This inclusion also includes the works of a master or buildings that possess high artistic value. Criterion C applies to architecture.
- Criterion D: This criterion includes properties that have yielded or may be likely to yield information important in history or prehistory. This category is mainly relevant to archaeological properties.

In addition to these criteria, a property must also possess integrity of location, design, setting, materials, workmanship, feeling, and association as described in 36 CFR 60.4 to be considered NRHP-eligible.

ENCLOSURE 2

Twenty-nine NRHP-listed properties (26 individual properties and three historic districts) are located within a ~~ten~~10-mile radius of the center of the CRN property. One eligible historic district is included within the CR SMR Project APE. Following are brief descriptions of the 26 NRHP-listed individual properties. The historic districts are addressed in Subsection 2.5.3.7.2.

...

2.5.3.92.5.3.7.2 National Register of Historic Places Listed Historic Districts

A National Register Historic District (NRHD) derives its importance from being a diverse group of resources unified by one or more of the NRHP criteria as described in Subsection 2.5.3.87.1. A district can reflect one principal purpose, such as a medical district, or a grouping of archaeological sites related by common elements. NRHDs can also represent a collection of buildings with a common type or style that, as a group, embodies the characteristics of construction within a period.

Following are brief descriptions of the three NRHDs within a 10-mi radius of the center point of the CRN Site and the one eligible district within the CR SMR Project APE.

...

Melton Hill Hydroelectric Project/Melton Hill Dam

TVA intends to nominate the Melton Hill Hydroelectric Project/Melton Hill Dam District in Roane County, as an NRHD. The district is located on the Clinch River, 23.1 mi upstream of the confluence of the Clinch River with the Tennessee River. It is located 9 mi south of the City of Oak Ridge and 19 mi west of the City of Knoxville. The Melton Hill Hydroelectric Project impounds the Melton Hill Reservoir. The reservoir extends 44 mi upstream and has a maximum width of 0.8 mi. The Melton Hill Dam is the only TVA tributary dam with a navigational lock. Construction of the Melton Hill Hydroelectric Project began in 1960 and was completed in 1964.

The Melton Hill Hydroelectric Project/Melton Hill Dam proposed NRHD consists of 15 contributing resources (eight buildings, two sites, and five structures) and seven non-contributing resources (seven buildings). Contributing resources include the Melton Hill Dam (a concrete non-overflow dam and spillway), powerhouse, navigational lock, lock control buildings 1 and 2, the lock operation building, switchyard and transmission lines, visitor building, main office building, flammable materials storage shed, hazardous materials storage shed, visitor building picnic area, recreation area, and bathhouse 1 and 2. The Melton Hill Hydroelectric Project/Melton Hill Dam is proposed to be nominated as significant under Criterion A (event) and C (architecture). (Reference 2.5.3-65)

ENCLOSURE 2

The following references are being revised/added within ER Subsection 2.5.3.13 (new 2.5.3.11). Strikethrough text indicates deleted text. Underlined text indicates text added.

~~2.5.3.13~~2.5.3.11 References

Reference 2.5.3-20. Tennessee Valley Authority and Tennessee State Historic Preservation Officer, "Programmatic Agreement between the Tennessee Valley Authority and the Tennessee State Historic Preservation Office regarding the management of historic properties affected by the Clinch River SMR Project," ~~August 27, 2015~~July 20, 2016.

Reference 2.5.3-65. National Park Service, "National Register of Historic Places Registration Form - Melton Hill Hydroelectric Project," 2016.

Reference 2.5.3-66. National Park Service, "National Register of Historic Places Multiple Property Documentation Form - Historic Resources of the Tennessee Valley Authority Hydroelectric System, 1933-1979," April 12, 2016.

Reference 2.5.3-67. Tennessee Valley Authority, "Clinch River Small Modular Reactors Project, APE Expansion to Include Melton Hill Dam, Roane County, Tennessee," August 18, 2016.

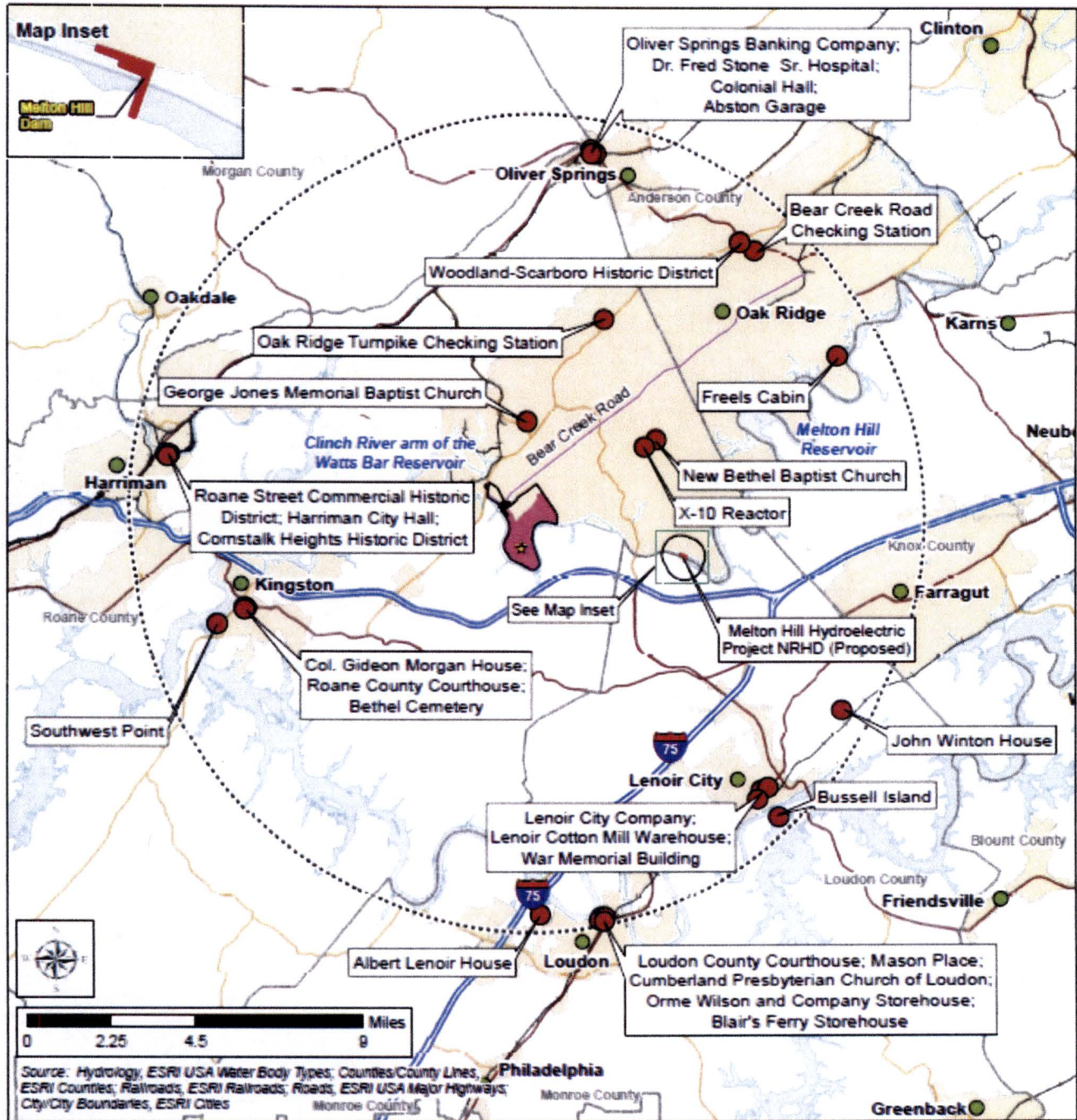
ENCLOSURE 2

Table 2.5.3-1 (Sheet 3 of 3)
Previously Recorded Aboveground Historic Properties Within a 10-Mile Radius of the CRN Site

Property Name	Address (if known)	General Location	Property Association	NRHP/Tennessee Landmark Status
Blair's Ferry Storehouse	800 Main St.	Loudon County	Individual	Listed
Freel's Cabin	Freels Bend Rd.	Anderson County	Individual	Listed
Oliver Springs Banking Company	Tri County Blvd	Oliver Springs, Anderson County	Individual	Listed
Bear Creek Road Checking Station	Jct. of S. Illinois Ave, and Bear Creek Rd.	Anderson County	Individual	Listed
Woodland-Scarboro Historic District	Rutgers Ave., Lafayette Dr., Benedict, Wilburforce and Illinois Aves	Anderson County	Historic District	Listed
Manhattan Project National Historic Landmark	Three locations, X-10 Graphite Reactor East Tennessee Technology Park (former home to the K-25 gaseous diffusion building) Y-12 New Hope Center.	Oak Ridge, Roane County	Historic Landmark	Established by the National Defense Authorization Act, 2015.
<u>Melton Hill Hydroelectric Project/Melton Hill Dam</u>	<u>2009 Grubb Road, Lenoir City</u>	<u>Roane County</u>	<u>Historic District</u>	<u>Eligible, Nomination pending.</u>

Sources: (Reference 2.5.3-62; Reference 2.5.3-39; Reference 2.5.3-59; Reference 2.5.3-63; Reference 2.5.3-21; Reference 2.5.3-22; Reference 2.5.3-23; Reference 2.5.3-24; Reference 2.5.3-25; Reference 2.5.3-26; Reference 2.5.3-27; Reference 2.5.3-30; Reference 2.5.3-31; Reference 2.5.3-33; Reference 2.5.3-35; Reference 2.5.3-36; Reference 2.5.3-38; Reference 2.5.3-41; Reference 2.5.3-42; Reference 2.5.3-43; Reference 2.5.3-45; Reference 2.5.3-47; Reference 2.5.3-49; Reference 2.5.3-50; Reference 2.5.3-51; Reference 2.5.3-52; Reference 2.5.3-53; Reference 2.5.3-54; Reference 2.5.3-64; Reference 2.5.3-57; Reference 2.5.3-34; Reference 2.5.3-6

ENCLOSURE 2



Legend

- NRHP-Listed or Nominated Sites
- ☆ CRN Site Center Point
- Cities
- Clinch River SMR APE
- 10-mile Radius
- CRN Site
- Rivers and Lakes
- City and Town Boundaries
- Counties
- Railroad
- Interstate
- Highway
- Major Road
- Bear Creek Road

Figure 2.5.3-2.

NRHP-Listed Aboveground Historic Properties Within 10-Mile of the Center Point of the CRN Site
Figure 2.5.3-3. Previous Surveys On and Adjacent to the Clinch River Property

ENCLOSURE 2

The following markups reflect the revisions being made to ER Subsections 4.1.3 and 4.1.4. Strikethrough text indicates deleted text. Underlined text indicates text added.

4.1.3 Historic Properties

This subsection focuses on the potential for the CR SMR Project construction to affect historic properties within the CRN Site, ~~and within 0.5-mi of the CRN Site (including the Barge/Traffic Area), at the Melton Hill Dam, and within 0.5 mi of the Melton Hill Dam.~~ Archaeological sites and aboveground historic properties are among the properties that can be considered for listing on the National Register of Historic Places (NRHP). They are the principal historic properties of concern with regard to effects from CRN Site construction, along with traditional cultural properties. (Subsection 2.5.3, Tables 2.5.3-1 and 2.5.3-2, and Figures 2.5.3-1 and 2.5.3-2 present the site numbers, locations, and NRHP status of relevant historic properties within the 10-mi radius of the CRN Site center point, which includes the Melton Hill Dam.) Direct effects from CR SMR Project construction to historic properties are possible within the CR SMR Project area of potential effect (CR SMR Project APE). The CR SMR Project APE is described in Subsection 2.5.3.

As described in Subsection 2.5.3, no NRHP-listed properties are located on or immediately adjacent to the CRN Site or the Barge/Traffic Area. One NRHP eligible National Register Historic District (NRHD) is located within the CR SMR Project APE. Fifty-nine recorded archaeological sites, four isolated finds, one non-site locality, and one cemetery have been identified within or immediately adjacent to the ~~approximately 1305 ac~~ CR SMR Project APE. Of these sites, one is considered eligible for listing on the NRHP; 16 are considered potentially eligible for the NRHP; and 42 are considered not eligible for the NRHP. Ten of the eligible and potentially eligible sites are avoidable. Within the CRN Site, sites 40RE0107, 40RE0595, 40RE0549, 40RE0104, and 40RE0105 will potentially be impacted by CR SMR Project preconstruction and construction activities. In the Barge/Traffic Area, sites 40RE138 and 40RE233, may be affected by CR SMR Project preconstruction and construction activities. Within the CR SMR Project APE, the Melton Hill Dam will potentially be impacted by CR SMR Project preconstruction and construction activities.

To avoid, minimize, and mitigate potential effects to historic properties, TVA has executed a Programmatic Agreement (PA) pursuant to 36 CFR 800.14(b)(3), the signatories are: TVA and the Tennessee State Historic Preservation Officer (SHPO). Invited concurring parties are the Eastern Band of the Cherokee Indians and the United Keetoowah Band of the Cherokee Indians in Oklahoma. The PA records the terms and conditions agreed upon to resolve potential adverse effects of the undertaking. It provides for modifications to the CR SMR Project APE, evaluating the NRHP eligibility of unevaluated resources (archaeological sites and historic architectural resources), evaluating project effects to resources, and resolution of adverse effects. The current PA is in effect ~~through submittal of the COLA until construction of the SMR project is complete or the undertaking is otherwise terminated,~~ (Reference 4.1-1). ~~An amendment extending the duration of the PA is anticipated in advance of construction.~~ The following paragraphs describe the stipulations in the PA to avoid, minimize, and mitigate potential effects to historic properties within the CR SMR Project APE.

As stipulated in the PA, the ~~approximately 1305 ac~~ CR SMR Project APE will remain as defined unless TVA determines, in consultation with the Tennessee SHPO, that final project plans warrant revisions to better delineate the area in which there is a potential for effects on historic properties. If project plans result in activities that would disturb soils or sediments to depths

ENCLOSURE 2

greater than the maximum depth investigated previously during the archaeological surveys of the CR SMR Project APE (approximately 80 centimeters/31 inches), in areas with potential for deeply buried cultural deposits, the CR SMR Project APE would be enlarged in the vertical dimension in those areas to include deposits not previously investigated that could be affected by the undertaking. Should the CR SMR Project APE be revised in either the vertical and/or horizontal direction, TVA would undertake any additional steps necessary to identify historic properties within the revised CR SMR Project APE. Such steps could include additional Phase I surveys. (Reference 4.1-1)

...

4.1.3.2 Historic Structures

As discussed in Subsection 2.5.3.7.2, no one eligible nominated NRHD, the Melton Hill Hydroelectric Project/Melton Hill Dam was identified within the CR SMR Project APE~~potentially-eligible, eligible, or listed NRHP~~aboveground historic properties or districts were identified in the CR SMR Project APE during any previous survey. No historic structures are present within the CR SMR Project APE within 0.5 mi of the CRN Site. As described in Subsection 3.4.2.5, TVA has identified the potential need for a future minor modification to the flow of the Clinch River in the CR SMR Project vicinity. An increase in flow of up to 400 cubic feet per second (cfs) may be needed to regulate water temperatures in the Clinch River arm of the Watts Bar Reservoir during times of low water levels, depending on the reactor design ultimately selected for the site. The magnitude of the change would be small compared to the average unregulated flow of 4520 cfs at Melton Hill Dam, approximately 3.5 river miles upstream of the intake location. TVA is considering a number of alternatives for providing this additional flow. Some of the alternatives could require changes at Melton Hill Dam. Project designs would not be proposed until a reactor design is selected. The Melton Hill Dam (including the spillway) is a contributing structure to the Melton Hill Hydroelectric Project nominated NRHD. TVA will adhere to and comply with the stipulations of the PA with respect to modifications of the Melton Hill Dam. Therefore, impacts to historic structures as a result of preconstruction and construction activities associated with the CR SMR Project would be SMALL to MODERATE. Implementation of the mitigation measures as stipulated in the PA would minimize the potential for LARGE impacts to historic structures~~impacts to historic sites would be SMALL.~~

4.1.3.3 Cemeteries

One cemetery, the Hensley Cemetery, exists on the CRN Site. As discussed in Subsection 2.5.3.409, this cemetery is not eligible for the NRHP. TVA has determined that this cemetery will remain in place onsite and that families will be able access the cemetery (Reference 4.1-6). Therefore, impacts to the Hensley Cemetery would be SMALL.

4.1.3.4 Traditional Cultural Properties

As discussed in Subsection 2.5.3.4210, no traditional cultural properties have been identified in consultation with federally recognized Native American tribes that attach religious and cultural significance to an archaeological historic property, or any other interested parties on the CRN Site, or within a 0.5-mi radius from the CRN Site.

ENCLOSURE 2

4.1.4 References

Reference 4.1-5. Tennessee Valley Authority and Tennessee State Historic Preservation Officer, "Programmatic Agreement between the Tennessee Valley Authority and the Tennessee State Historic Preservation Office regarding the management of historic properties affected by the Clinch River SMR Project," ~~August 27, 2015~~ July 20, 2016.

The following markups reflect the revisions being made to ER Subsection 4.7.5.3. Strikethrough text indicates deleted text. Underlined text indicates text added.

4.7.5.3 Historic Properties Impacts

Subsection 2.5.3 describes the historical and cultural resources affected by the proposed CR SMR Project.

The geographic area of interest for the analysis of cumulative impacts to historic properties includes:

- The archaeological resources and historic properties within the CR SMR Project Area of Potential Effect (APE) defined in Subsection 2.5.3 as the approximately 1200-ac Clinch River Property, an additional approximately 105 ac northwest of the property near the CRN Site entrance and along Bear Creek Road and Tennessee State Highway (TN) 58, the Melton Hill Dam, and a 0.5 mi radius around the Melton Hill Dam. ~~the approximately 1305-ac area that includes the CRN Site and the Barge/Traffic Area~~
- The Historic Architectural APE is 0.50-mi radius surrounding the proposed cleared areas. ~~(Figure 2.5.3-1)~~
- The historic properties (those eligible for listing on the National Register of Historic Places [NRHP]) within a 10-mi radius of the center of the CRN Site (Figure 2.5.3-2).

Subsection 4.1.3 describes impacts to historic and cultural resources during preconstruction and construction activities at the CRN Site. Fifty-nine recorded archaeological sites, four isolated finds, one non-site locality, one NRHP-eligible historic district, and one cemetery have been identified within or immediately adjacent to the ~~approximately 1305-ac~~ CR SMR Project APE. Of these archaeological sites, one is considered eligible for listing on the NRHP; 16 are considered potentially eligible for the NRHP; and 42 are considered not eligible for the NRHP. Ten of the eligible and potentially eligible sites are avoidable. Within the CRN Site, sites 40RE0107, 40RE0595, 40RE0549, 40RE0104, and 40RE0105 would potentially be impacted by CR SMR Project preconstruction and construction activities. In the Barge/Traffic Area, sites 40RE138 and 40RE233, may be affected by CR SMR Project preconstruction and construction activities. The NRHP-eligible Melton Hill Hydroelectric Project/Melton Hill Dam and historic district would potentially be impacted by preconstruction and construction activities and potentially by operational activities. As described in Subsection 4.1.3, impacts to historic properties would be SMALL to MODERATE.

This cumulative analysis considers impacts from preconstruction and construction, along with impacts from past, present, and reasonably foreseeable actions that may contribute to cumulative impacts to historic and cultural resources within the geographic area of interest, the

ENCLOSURE 2

geographic area most likely to be affected by the proposed CR SMR Project. The geographic area of interest for archaeological resources is the ~~1305-ac~~ CR SMR Project APE. For historic architectural resources the geographic area of interest is the 0.5-mi radius around the CRN Site.

As discussed in Subsection 4.1.3, TVA has developed a Programmatic Agreement (PA) pursuant to 36 CFR 800.14(b)(3). Signatories are TVA, the Tennessee State Historic Preservation Officer (SHPO) and invited concurring party, the Eastern Band of the Cherokee Indians. The PA records the terms and conditions agreed upon to resolve potential adverse effects of the undertaking. It provides for modifications to the CR SMR Project APE, evaluating the NRHP eligibility of unevaluated resources (archaeological sites and historic architectural resources), evaluating project effects to resources, and resolution of adverse effects. A discovery plan will be developed in consultation with the SHPO and any federally-recognized Native American tribe that attaches religious significance and cultural significance to the historic property affected by the undertaking, to deal with the subsequent discovery or identification of additional historic properties affected by the undertaking. This plan would be implemented in the unlikely event that an unanticipated discovery occurs during preconstruction and construction activities. (Reference 4.7-23)

As a result of the added text to ER Subsection 4.7.5.3, the following reference is being added to ER Subsection 4.7.7.

4.7.7 References

Reference 4.7-23. Tennessee Valley Authority and Tennessee State Historic Preservation Officer, "Programmatic Agreement between the Tennessee Valley Authority and the Tennessee State Historic Preservation Office regarding the management of historic properties affected by the Clinch River SMR Project," July 20, 2016.

The following markups reflect the revisions being made to ER Subsections 5.1.3 and 5.1.4. Strikethrough text indicates deleted text. Underlined text indicates text added.

5.1.3 Historic Properties

This subsection focuses on the potential for the CR SMR Project to affect historic properties within the CRN Site, ~~and within a 0.5-mile (mi) radius surrounding the area in which vegetation clearing would take place,~~ at the Melton Hill Dam, and within 0.5 mi of the Melton Hill Dam. Archaeological sites and aboveground historic properties are among the properties that can be considered for listing on the National Register of Historic Places (NRHP). They are the principal historic properties of concern with regard to effects from CR SMR Project operations at the CRN Site along with traditional cultural properties. Additionally, Subsection 2.5.3, Tables 2.5.3-1 and 2.5.3-2, and Figures 2.5.3-1 and 2.5.3-2 present the site numbers, locations, and NRHP status of relevant historic properties within the 10-mi radius of the CRN Site center point, which includes the Melton Hill Dam. Direct effects from CR SMR Project operations to historic properties are possible within the CR SMR Project area of potential effect (CR SMR Project APE). The CR SMR Project APE is described in Subsection 2.5.3.

ENCLOSURE 2

As described in Subsection 2.5.3, no NRHP-listed properties are listed on or immediately adjacent to the CRN Site. One NRHP eligible district is located within the CR SMR Project APE. Fifty-nine recorded archaeological sites, four isolated finds, one non site locality, and one cemetery have been identified within or immediately adjacent to the ~~approximately 1305-acre~~ CR SMR Project APE. Of these sites, one site is considered to be eligible for the NRHP, 16 sites are considered potentially eligible (or of undetermined eligibility) for the NRHP; and 42 are considered not eligible for the NRHP. Ten of the eligible and potentially eligible sites are avoidable.

As discussed in Subsection 4.1.3, Tennessee Valley Authority (TVA) has executed a Programmatic Agreement (PA) pursuant to Title 36 of the Code of Federal Regulations 800.14(b)(3). The PA provides for modifications to the CR SMR Project APE, evaluating the NRHP eligibility of unevaluated resources (archaeological sites and historic architectural resources), evaluating project effects to resources, and resolution of adverse effects. TVA would implement the provisions of the PA in the event of any changes to the CR SMR Project. The PA provides measures to mitigate impacts to historic properties associated with operations of the CR SMR Project.

5.1.3.2 Historic Structures

As discussed in Subsection 2.5.3.7, one eligible district, the Melton Hill Hydroelectric Project/Melton Hill Dam was identified within the CR SMR Project APE~~no potentially eligible, eligible, or listed NRHP aboveground historic properties or districts were identified in the CRN Site during any previous survey.~~ As described in Subsection 3.4.2.5, TVA has identified the potential the Plant Parameter Envelope (PPE) includes minor modification to the flow of the Clinch River in the CR SMR Project vicinity to maintain up to 400 cfs flow. As described in Subsection 4.1.3.2 such a flow modification could require changes at Melton Hill Dam. Project designs would not be proposed until a reactor design is selected and most modifications are anticipated to occur during the preconstruction and construction phase. The Melton Hill Dam (including spillway) is a contributing structure to the Melton Hill Hydroelectric Project nominated NRHD. TVA will adhere to and comply with the stipulations of the PA with respect to modifications of the Melton Hill Dam. Therefore, impacts to historic structures as a result of operation activities associated with the CR SMR Project would be SMALL to MODERATE. Implementation of the mitigation measures as stipulated in the PA would minimize the potential for LARGE impacts to historic structures. ~~Within a 0.5 mi radius surrounding the area in which vegetation clearing would take place, there are no historic structures present within the CR SMR Project APE. Therefore, CR SMR Project operations have no direct effects on historic structures.~~

5.1.3.3 Cemeteries

One cemetery, the Hensley Cemetery, exists on the CRN Site. As discussed in Subsection 2.5.3.4~~9~~, this cemetery is not eligible for the NRHP. TVA has determined that this cemetery would remain in place onsite, TVA would maintain the cemetery grounds and access road, and families would be able access the cemetery (Reference 5.1-2). Therefore, impacts to the Hensley Cemetery associated with CR SMR Project operations would be SMALL and beneficial resulting in greater preservation, upkeep, and access.

ENCLOSURE 2

5.1.3.4 Traditional Cultural Properties

As discussed in Subsection 2.5.3.4~~210~~, no traditional cultural properties have been identified in consultation with any federally recognized Native American tribe that attaches religious and cultural significance to an archaeological historic property, or any other interested parties on the CRN Site or within a 0.5-mi surrounding the area in which vegetation clearing would take place.

5.1.4 References

Reference 5.1-1. Tennessee Valley Authority and Tennessee State Historic Preservation Officer, "Programmatic Agreement between the Tennessee Valley Authority and the Tennessee State Historic Preservation Office regarding the management of historic properties affected by the Clinch River SMR Project," ~~August 27, 2015~~July 20, 2016.

The following markups reflect the revisions being made to ER Subsection 5.8.3.1. Strikethrough text indicates deleted text. Underlined text indicates text added.

5.8.3.1 Potential Physical Impacts

For the purpose of this environmental justice assessment, physical impacts under consideration due to CR SMR Project operation include potential effects on land use, water, and ecology. Ecological resources are a concern in the event that any minority or low-income populations in the area are dependent on fishing or farming for subsistence. Potential impacts on land use are described in detail in Section 5.1. Impacts on water are described in Section 5.2. Ecological and public health impacts in regard to the cooling system, radiation exposure pathways, and the transmission system are described within Sections 5.3, 5.4, and 5.6, respectively.

The CR SMR Project includes structures and facilities located within the CRN Site boundaries as well as on nearby and adjacent offsite areas. Offsite facilities include the 69-kV underground transmission line, railroad siding, and barge landing area, all located within property owned by the federal government and managed by the DOE or TVA and not in proximity to any residences. In addition, the Clinch River arm of the Watts Bar Reservoir is used to supply source water for the circulating water system for the SMR units.

As described in Section 5.1, the impacts on the surrounding public from any land use impacts as a result of CR SMR Project operation would be SMALL to MODERATE, including effects on land use in the vicinity of the CRN Site, transmission corridors and roadways, and historic properties. Because the effects are SMALL and because of the spatial distribution of minorities and low-income population in the region, the potential for disproportionate land use impacts on minority and low income populations would be SMALL to MODERATE.

ENCLOSURE 2

The following markups reflect the revisions being made to ER Subsection 5.11.6. Strikethrough text indicates deleted text. Underlined text indicates text added.

5.11.6 Cumulative Historic Properties Impacts

Subsection 4.7.5.3 summarizes the geographic and temporal scope of the cumulative analysis. The geographic area of interest for analysis of cumulative impacts to historic properties includes:

- The archaeological resources and historic properties within the CR SMR Project Area of Potential Effect (APE) defined in Subsection 2.5.3 as the approximately 1200-ac Clinch River Property, an additional approximately 105 ac northwest of the property near the CRN Site entrance and along Bear Creek Road and Tennessee State Highway (TN) 58, the Melton Hill Dam, and a 0.5 mi radius around the Melton Hill Dam.~~4305-ac area that includes the CRN Site and the Barge/Traffic Area~~
- The Historic Architectural APE is 0.50-mi radius surrounding the proposed cleared areas. (Figure 2.5.3-1)
- The historic properties (those eligible for listing on the NRHP) within a 10-mi radius of the center of the CRN Site (Figure 2.5.3-2).

This section examines the cumulative impacts associated with the past, present, and reasonably foreseeable future projects, including global climate change, on historic and cultural resources; and the incremental contribution of preconstruction and construction activities to those cumulative impacts. This subsection addresses the incremental contribution of SMR operation to those cumulative impacts.

Subsection 5.1.3 describes impacts to historic and cultural resources during operation of the SMRs. As discussed in that section, impacts of the operation of the SMRs on historic and cultural resources at the CRN Site and in the vicinity would be SMALL to MODERATE. ~~Although project construction could permanently impact historic and cultural resources on the CRN Site and in the Barge/Traffic Area, there would be no further impacts as a result of CR SMR Project operations.~~ Modifications to the Melton Hill Dam could be required to accommodate anticipated modification of the flow of the Clinch River as described in Subsection 3.4.2.5. The Melton Hill Dam and associated structures is eligible for the NRHP. Implementation of the mitigation measures as stipulated in the PA would minimize the potential for LARGE impacts to historic structures. Because the nature of the modifications required is unknown at this time, impacts to historic structures as a result of implementation of SMR operation would be SMALL to MODERATE.

ENCLOSURE 2

The following markups reflect the revisions being made to ER Chapter 10. Strikethrough text indicates deleted text. Underlined text indicates text added.

10.1.1 Unavoidable Adverse Environmental Impacts during Construction and Preconstruction

...
(10th paragraph)

As described in Subsection 4.1.3, some archaeological and historic resources are located in areas that are impacted by construction. A final assessment and any required mitigation for the archaeological ~~historic~~ sites are dependent on the outcome of the Phase II testing and Tennessee State Historic Preservation Officer (SHPO) consultation. A final assessment and any required mitigation for the historic sites, specifically the Melton Hill Dam, is dependent on the final SMR design and determination of required modifications at the dam, if any. TVA will adhere to and comply with the stipulations of the Programmatic Agreement (PA) with respect to archaeological and historic resource impacts. With construction and preconstruction activities, although unexpected, there is the potential for inadvertent discovery of previously unknown archaeological resources or human remains. Therefore, impacts to archaeological and historic properties would be SMALL to MODERATE.

10.1.2 Unavoidable Adverse Environmental Operational Impacts

...
(15th paragraph)

As discussed in Subsection 5.1.3.1, potential disturbance or impacts to archaeological and historic resources during maintenance activities would be SMALL. Such possible impacts would be mitigated through consultation with the SHPO and development of appropriate treatment measures depending on the nature of the discovery and impact.

10.2.1 Irreversible Environmental Commitments

Irreversible environmental commitments resulting from the CR SMR Project include:

- Changes in land cover and land use
- Loss of aquatic and terrestrial habitats and biota
- Removal of some archaeological resources, and potential loss of some unidentified archaeological resources, and potential permanent modification of the NRHP-eligible Melton Hill Dam
- Degradation of air and water resources
- Land disposal of equipment and materials contaminated by hazardous and low-level radioactive waste
- Commitment of underground geological resources for disposal of high-level radioactive waste and spent fuel
- Destruction of geological resources during uranium mining

ENCLOSURE 2

10.2.1.3 Historic Properties

As described in Subsection 4.1.3, some archaeological sites within the CRN Site cannot be avoided and will be displaced and/or destroyed by CRN Site construction and modifications may be required at the NRHP-eligible Melton Hill Dam. TVA has executed a ~~Programmatic Agreement (PA)~~ pursuant to 36 CFR 800.14(b)(3) to record the terms and conditions agreed upon to resolve potential adverse effects of the undertaking on historic and archaeological resources. The signatories to the PA are: TVA and the Tennessee SHPO. Invited concurring parties are the Eastern Band of the Cherokee Indians and the United Keetoowah Band of the Cherokee Indians in Oklahoma. ~~A final assessment and development of the required~~ mitigation for historic properties ~~are~~ is dependent on the selection of the final SMR design, water flow modification requirements at Melton Hill Dam, and the outcome of Phase II testing, if any, and Tennessee SHPO consultation resulting from these design selections, in accordance with the stipulations in the PA. With implementation of the PA, ~~No~~ significant effects on archaeological or historic resources are anticipated. The inadvertent discovery of previously unknown archaeological resources or human remains is possible and would be addressed in accordance with the stipulations of the PA.