Tennessee Valley Authority, 1101 Market Street, Chattanooga, TN 37402

CNL-16-200

December 13, 2016

10 CFR 2.101
10 CFR 52.15

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Clinch River Nuclear Site
NRC Project No. 785

Subject: Submittal of Supplemental Information Regarding Terrestrial Ecology in Support of Early Site Permit Application for Clinch River Nuclear Site

References:
1. Letter from TVA to NRC, CNL-16-081, "Application for Early Site Permit for Clinch River Nuclear Site," dated May 12, 2016
2. Letter from TVA to NRC, CNL-16-134, "Schedule for Submittal of Supplemental Information in Support of Early Site Permit Application for Clinch River Nuclear Site," dated August 11, 2016

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. In addition, 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.

In addition to the planned submission of supplemental information identified in Reference 2, and consistent with subsequent interactions with the NRC staff, TVA is providing supplemental information related to terrestrial ecology. The enclosure to this letter provides supplemental information related to the potential impacts to important species and habitats and wetlands in the transmission line corridor segments that would be affected by reconductoring, uprating, and rebuilding, and to wetlands in the barge traffic area, including a markup of the affected Environmental Report (ER) sections. In addition, the enclosure provides more definitive information on the need for and potential sources of borrow materials, including a markup of the affected ER sections. These changes will be incorporated in a future revision of the early site permit application.

There are no new regulatory commitments associated with this submittal. If any additional information is needed, please contact Dan Stout at (423) 751-7642.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 13th day of December 2016.

Respectfully,

J. W. Shea

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J. W. Shea
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Enclosure:

Supplemental Information Regarding Terrestrial Ecology

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ENCLOSURE

Supplemental Information Regarding Terrestrial Ecology

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. In addition, 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.

In addition to the planned submission of supplemental information identified in Reference 2, and consistent with subsequent interactions with the NRC staff, TVA is providing supplemental information related to terrestrial ecology. In this enclosure, Supplemental Information, Item 1, provides information related to the potential impacts to important species and habitats and wetlands in the transmission line corridor segments that would be affected by reconductoring, uprating, and rebuilding, and to wetlands in the barge traffic area (BTA), including a markup of the affected Environmental Report (ER) sections. Supplemental Information, Item 2, provides more definitive information on the need for and potential sources of borrow materials, including a markup of the affected ER sections. These changes will be incorporated in a future revision of the early site permit application (ESPA).

References:

1. Letter from TVA to NRC, CNL-16-081, "Application for Early Site Permit for Clinch River Nuclear Site," dated May 12, 2016

2. Letter from TVA to NRC, CNL-16-134, "Schedule for Submittal of Supplemental Information in Support of Early Site Permit Application for Clinch River Nuclear Site," dated August 11, 2016

Supplemental Information, Item 1

ER Subsection 2.4.1.6 describes the ecological resources along the offsite transmission line corridors that may be modified in conjunction with the Clinch River (CR) Small Modular Reactor (SMR) Project. ER Subsection 3.7.3 describes the activities that likely would be involved in these modifications. These subsections describe the location of, and the methods for, conducting these activities, briefly describe the locations of important ecological resources in these areas, and briefly discuss best management practices (BMPs) to prevent or minimize potential ecological impacts.

As a part of the initial planning for the CR SMR Project, TVA performed an Interconnection System Impact Study to assess the potential impacts to the TVA transmission system of the addition of 720 megawatt (MW) of additional generating capacity at the CRN Site. This information was derived utilizing power flow models of projected future system conditions. The planning models incorporate assumptions concerning loads, transmission system configuration, generation dispatch, firm transactions, and other information pertinent to building power flow models. TVA uses available information about transmission and generation additions and upgrades that may subsequently change. The system models external to TVA were obtained from either the applicable control area or the most recent base cases from SERC Reliability Corporation.

However, given the dynamic nature of the TVA transmission system, and the long lead time between the ESPA, selection of a specific SMR technology vendor, and submission of a

combined license application (COLA), the planning assumptions described above are anticipated to change. Therefore, the predicted impacts to the TVA system and associated changes in the corridor segments that need to be modified are likely to change. Changes to the predicted impacts to the TVA system and associated changes in the corridor segments that need to be modified will be addressed in the COLA.

ER Subsections 2.4.1.6 and 2.4.2.1.4 discuss the terrestrial, wetland, and aquatic ecological resources of the segments of the transmission system outside the CRN Site that may require modifications (uprating, reconductoring, or rebuilding) based on current estimates. ER Figure 2.2-7 indicates, on a regional scale, the transmission lines that may be modified and the land cover types in those areas. ER Subsections 2.4.1.6 and 2.4.2.1.4 are being revised to refer to ER Figure 2.2-7 for this information.

The TVA Natural Heritage Database includes records of the identified and potential ecological resources in the area of each structure within a transmission line corridor. ER Table 2.4.1-7 provides a summary of this information, identifying the ecological resources associated with each line and the type of modification likely to occur along each line. ER Table 2.4.1-7, footnote 1, is being revised to specify that the listed resources are based on data from the TVA Natural Heritage Database.

ER Subsection 3.7.3.8 is being revised to elaborate on the BMPs that would be employed for potential transmission system modifications. ER Subsections 4.3.1.6 and 4.3.2.5 are being revised to reiterate that the BMPs would prevent or minimize potential ecological impacts such that resources along the segments of the lines that are modified would not be noticeably affected. Activities that would affect specific wetlands or streams would be subject to extensive State permitting and controls, as well as TVA internal procedures for protection and mitigation.

ER Subsection 4.3.1.2 describes the potential impacts from preconstruction and construction on the five wetlands in the BTA. ER Subsection 4.3.1.2 is being revised to provide an estimate of the total area of wetlands that would be impacted by road construction in the BTA and to clarify that the extent to which these five wetlands are affected will be determined by the roadway design (finalized during the COLA stage) and the specific plans developed for these areas.

In addition, other changes are being made to the above ER subsections to improve clarity and readability.

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Supplemental Information Regarding Terrestrial Ecology

ER Subsection 2.4.1.6 (third paragraph) is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

As discussed in Subsections 2.2.3 and ~~Section~~ 3.7.3.8, segments of the transmission system outside the CRN Site (other than the segment containing the 69-kV underground line discussed above) would require modifications involving uprating, reconductoring, or rebuilding. However, additional ROWs would not be established, cleared, or developed. The lines that include segments or structures that may need to be modified are overlaid on a map of regional land cover types in Figure 2.2-7. The vegetation communities within the~~se~~ ROWs for these lines are actively maintained by TVA as predominantly herbaceous communities consisting of plant and animal species such as those described above for such communities on the CRN Site and the Barge/Traffic Area. Based on TVA's Natural Heritage database, Table 2.4.1-7 identifies the biological resources that have been identified as potentially occurring on or near the ROWs for these lines. These resources include important terrestrial habitats such as state parks, state forests, and wildlife management areas; wetlands; and federal and state ~~Listed~~ listed terrestrial species ~~with recorded occurrences on or near affected segments of these ROWs include~~ (Indiana bat~~s and~~, northern long-eared bat~~s~~, and plants). ~~The important terrestrial habitats, wetlands, and listed species that occur in ROW segments of the lines to be modified are summarized in Table 2.4.1-7.~~

ER Table 2.4.1-7, footnote 1, is being revised as indicated. Underlines indicate text to be added.

Table 2.4.1-7 (Sheet 4 of 4)
Biological Resources in ROWs of Transmission System Line Segments to be Modified

Line Modification	Line Number/ Name	Resource Type	Resource Description[1]
Uprate/ Reconductor	**L5882 Elza-Huntsville (Incl Braytown, Windrock)**	Terrestrial	Indiana bat and northern long-eared bat
		Botany	Federal and state listed species in vicinity
		Wetland	Wetlands (potential, pond)
		Natural	Big South Fork National River and Recreation Area, National Park Service
		Natural	North Cumberland State WMA
		Natural	East Fork Ridge State Protection Planning Site
		Natural	Oak Ridge National Laboratory and ORR
Uprate	**L5940 White Pine-Dumplin Valley**	Terrestrial	Indiana bat and northern long-eared bat
		Wetland	Wetlands (potential, pond)
Reconductor	**L5957 Douglas HP - White Pine (Incl Newport)**	Terrestrial	Bald eagle
		Wetland	Wetlands (pond/potential wetland, lake)
		Natural	Rankin Bottoms State WMA & Wildlife Observation Area

[1] Summary of resources identified as occurring in one or more of the affected segments of each line based on data from the TVA Natural Heritage database. Line segments affected and the lengths and acreage of the lines are included in Table 3.7-1.

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ER Subsection 2.4.2.1.4 (third paragraph) is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

As discussed in Subsections 2.2.3, 2.4.1.6, and ~~Section~~ 3.7.3.8, the transmission system structures within ROWs outside the CRN Site (other than the 69-kV underground line) would require modification by uprating, reconductoring, or rebuilding activities, but additional ROWs would not be developed. The lines that include segments or structures that may need to be modified are overlaid on a map of regional land cover types in Figure 2.2-7. Based on TVA's Natural Heritage database, ~~The~~the aquatic resources that potentially occur within the~~se~~ ROWs of the lines that may be modified are identified in Table 2.4.1-7. These resources include designated critical habitats for two endangered mussel species (one line segment to be uprated crosses over a riverine habitat unit for each species). Aquatic habitats within these existing ROWs would not be affected by these activities because of the limited potential for impacts associated with the types of activities to be performed and the use of BMPs to prevent or minimize erosion and sedimentation.

ER Subsection 3.7.3.8 is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

3.7.3.8 Description of Various Uprating Activities

Uprates are typically performed to increase the electrical capacity of an existing transmission line. Due to the potential system loading of 800 MWe from the CR SMR, uprating ten 161-kV transmission lines, and reconductoring seventeen 161-kV transmission lines (Figure 3.7-7) would be required.

As a matter of context, an 'uprate' can be performed at a single point or at multiple locations along the transmission line. Likewise, reconductoring can occur at a specific line segment or along the length of the transmission line. The total length of the ten 161-kV, and seventeen 161 kV transmission lines that would require some uprates and reconductoring is approximately 191 and 131 mi, respectively. This represents the actual length of the specific transmission line itself, not necessarily the length or extent of the actual uprate or reconductor work. The affected segment of each transmission line requiring uprates or reconductoring are identified in Table 3.7-1, but the particular engineering solution necessary within these segment(s) would depend on the final configuration and additional electrical capacity of the CR SMR. Additionally, one section of the 12.7-mi long Volunteer No 1 - North Knox 161-kV transmission line would require rebuilding. This section of transmission line has already undergone uprating activities in the past and has reached its maximum electrical capacity as currently designed. The final configuration and electrical capacity of the CR SMR would drive the specific engineering solution, but it is expected that some structures may have to be replaced or modified and that the existing conductor may be replaced with a larger size to support the increased electrical load. Descriptions of the types of uprate~~,~~ activities to be performed ~~reconductor, and transmission line rebuild activities~~ are described below.

- Moving Structures that Interfere with Clearance: As more electricity is transmitted through a transmission line, the conductor temperature rises and the transmission line

may sag. Structures located within the ROW may interfere with the ability to operate the transmission line safety and would be required to be moved.

- Replacement or Modification of Existing Structures or Installation of Intermediate Structure: Typical structure replacement, extensions or installation of intermediate structures would be performed with standard transmission line equipment such as bulldozers, bucket trucks, boom trucks, and forklifts. The end result of this work would be raising the existing conductor to provide the proper ground clearance. Disturbance would usually be limited to an approximately 100 foot circumference around the work structure.

- Conductor Modification: Conductor modifications would include conductor slides, cuts, or floating dead-ends to increase ground clearance. A cut involves removing a small amount of conductor and splicing the ends back together. A slide involves relocating the conductor clamp on the adjacent structure a certain distance toward the area of concern (i.e., "sliding" the clamp). No conductor is removed. A floating dead-end shortens the suspension insulator string of a structure to gain elevation at the attachment point of the conductor, increasing a span's clearance. These improvements require the use of a bucket truck; disturbance would be minimal and confined to the immediate area of the clearance issue.

- Conductor Replacement (Re-conductor): If the existing conductor size cannot support the transmission line's electrical load, the conductor would be replaced. Bucket trucks would be utilized for access and stringing equipment. Reels of conductor would be delivered to various staging areas along the ROW, and temporary clearance poles would be installed at road crossings to reduce interference with traffic. The new conductor would be connected to the old conductor and pulled down the transmission line through pulleys suspended from the insulators. A bulldozer and specialized tensioning equipment would be used to pull conductors to the proper tension. Crews would then clamp the wires to the insulators and remove the pulleys. Wire pulls vary in length but would be limited to a maximum of 5 mi pulls. Pull point locations depend on the type of structures supporting the conductor as well as the length of conductor being installed and would typically be located along the most accessible path on the ROW (adjacent to road crossings or existing access roads). The area of disturbance at each pull point would typically range from 200 to 300 ft along the ROW.

- Adding Surcharge: Sometimes when height and/or loading modifications are made to a structure, the addition of rock or dirt (surcharge) to structure footing would be required. These changes can create uplift on the existing tower footings or grillage; therefore a stone base settlement may be placed around the existing footings. The additional burden prevents the tower from rising under certain conditions (i.e., weather conditions or conductor loading). Typical installation of surcharge would be performed with tracked equipment with minimal ground disturbance. The stone would be piled around the footings as required and the depth would vary depending on the uplift on the affected structures.

- Modification of Local Power Company Transmission Lines: Local utilities distribution lines are lower in voltage compared to the transmission lines, and are final stage in the delivery of electricity to the end users. These are maintained by the local power

company. These may intersect TVA transmission lines. If a local utility crossing does not have adequate clearance, TVA would request that the local utility lower or re-route the crossing.

- Rebuild: The rebuilding of a transmission line typically means installing intermediate structures between existing structures for added structural support and/or clearance or tearing down existing structures and replacing with more robust structures. A combination of intermediate and new structures may be used depending on the condition of the affected structures.

Best management practices (BMPs) would be employed to prevent or minimize impacts from temporarily accessing and working on these line modifications. Impacts on streams, wetlands, and other adjacent habitats from the above activities on portions of existing transmission lines would be prevented or minimized through the use of BMPs such as hand clearing in sensitive areas, silt fencing, and other erosion control methods. BMPs for spill prevention would be employed to prevent chemical contamination of soil or surface water within ROWs during these activities. The TVA procedural documents *Right-Of-Way Vegetation Management Guidelines* and *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities* provide guidance to TVA personnel performing activities in transmission line ROWs (Reference 4.3-12; Reference 4.3-13). The guidelines address operations such as re-clearing of vegetation, maintenance of access roads, and erosion control. BMPs provided in these documents include methods for re-clearing, such as cutting of trees and herbicide application, and for protection of sensitive resources. Also, structural controls, standards, and specifications are identified for maintaining physical components such as riprap and culverts within ROWs.

Where streams or wetlands are crossed by the lines being modified, BMPs would be employed as needed to prevent or minimize impacts from sedimentation. After the required uprate work is completed, the ROW would be re-vegetated using native, low growing plant species in appropriate areas. Areas such as pasture, agricultural fields, or lawns would be returned to their former condition.

TVA maintains, and updates on a periodic basis, a database of both desktop and field-verified environmental resources (archeology/cultural resources, aquatics, botany, natural areas, terrestrial zoology, and wetlands) along existing transmission line corridors~~.~~, ~~In order to document current conditions TVA has characterized~~ including the ~~environmental~~ resources along the transmission line segments identified for ~~future work~~possible modification. The potential for impacts to those resources, however, depend entirely on the specific engineering solution presented in the future based upon the final configuration and electrical capacity of the CR SMR. Field reviews would commence when the design is finalized and associated impacts described at COLA.

ER Subsection 4.3.1.2 (third paragraph) is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

Wetlands located off the CRN Site in the Barge/Traffic Area are discussed in Subsection 2.4.1.2 and mapped in Figure 2.4.1-2. The wetland survey identified four wetlands totaling 10.06 ac along the south side of Bear Creek Road between TN 58 and the CRN Site entrance: W013

(3.73 ac), W014 (3.05 ac), W015 (1.95 ac), and W017 (1.33 ac). Wetlands W013 and W014 are on each side of the haul road connecting the barge facility to Bear Creek Road. Based on the proximity of these wetlands to Bear Creek Road and the haul road and the planned widening of these roads, there is a potential that the margins of these wetlands would be impacted by road improvements, which may require forest removal and filling in marginal areas. It is estimated that of the total 10-ac area of these four wetlands approximately 5 percent (0.5 ac) would be impacted by road construction. In addition, a small, 0.11-ac wetland (Wetland W016) is located immediately adjacent to the planned intersection of a new CRN Site access road to be constructed on the east side of TN 58. This wetland likely would ~~potentially~~ be impacted by preconstruction activities, which may require filling. ~~Whether~~ The extent to which these five wetlands ~~ultimately would be~~ are affected ~~is~~ will ~~to~~ be determined ~~based on~~by the ~~facility~~ roadway design ~~selected~~ finalized during the combined license application (COLA) stage and specific plans developed for these areas. Wetlands are not present in the underground transmission line ROW located off the CRN Site.

ER Subsection 4.3.1.6 (fourth paragraph) is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

Subsection 3.7.3.8 describes planned modifications to the existing transmission system outside the CRN Site, and Subsection 2.4.1.6 describes the ecological resources in the segments of the ROWs for those transmission lines that potentially would be affected. The uprating, reconductoring, and rebuilding activities would involve existing lines within existing ROWs, and additional ROWs would not be established, cleared, or developed. The resources within these ROWs (identified in Table 2.4.1-7) would not be noticeably affected by the temporary activities required for the planned upgrades. BMPs would be employed as described in Subsection 3.7.3.8 to prevent or minimize impacts to terrestrial habitats as a result of ~~from~~ temporarily accessing and working on these line modifications.

ER Subsection 4.3.2.5 (fourth paragraph) is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

Subsection 3.7.3.8 describes planned modifications to the existing transmission system outside the CRN Site, and Subsection 2.4.2.1.4 describes the aquatic ecological resources in the segments of the ROWs for those transmission lines that potentially would be affected. The uprating, reconductoring, and rebuilding activities would involve existing lines within existing ROWs, and additional ROWs would not be established, cleared, or developed. BMPs would be employed to prevent impacts from temporarily accessing and working on these line modifications. The aquatic resources within these ROWs are identified in Table 2.4.1-7. These resources, including designated critical habitats for two endangered mussel species, would not be noticeably affected by the temporary activities required for the planned upgrades.~~,~~ BMPs would be employed as described in Subsection 3.7.3.8 to prevent or minimize impacts to aquatic habitats as a result of temporarily accessing and working on these line modifications in the vicinity of aquatic habitats. Therefore, ~~and~~ potential impacts are expected to be SMALL.

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Supplemental Information Regarding Terrestrial Ecology

Supplemental Information, Item 2

ER Section 2.2 describes the CRN Site and land use in the vicinity and region of the CRN Site. ER Subsection 2.2.3 discusses the potential borrow areas in the site region that may be used as source material for onsite fill. ER Subsection 4.1.2 describes the impacts on land use at the CRN Site and within the 6-mile vicinity associated with the CR SMR Project. The discussions in ER Subsections 2.2.3 and 4.1.2 have been supplemented to provide more definitive information regarding the need of borrow materials, the location of the borrow materials, and the potential for expansion of existing borrow areas or establishment of new borrow areas.

As the potential for borrow areas beyond those identified in ER Figure 2.2-8 is not anticipated, the discussion of potentially acquiring borrow areas from federal lands has been removed from ER Section 2.9 and ER Subsection 2.9.4.

ER Subsection 2.2.3 is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

2.2.3 Transmission Corridors and Off-~~S~~site Areas

There are currently two transmission corridors crossing the CRN Site (Figure 2.2-6). The Kingston FP - Ft Loudoun HP 161 kV No.1 transmission line crosses the CRN Site from the southeastern tip of the peninsula to the northwestern corner of the CRN Site near the entrance gate. The Bull Run FP-Watts Bar NP 500 kV transmission line transverses the CRN Site northeast to southwest.

Onsite and offsite transmission lines are to be modified for the project. Onsite transmission lines are to be modified by relocating the 161 kV line to accommodate placement of the CRN facility. Offsite transmission lines are modified through the establishment of a 69kV underground transmission line from the Bethel Valley Substation to the CRN facility and upgrades needed to support stability of the TVA power grid. This 69 kV transmission line is to be placed within the existing 500 kV line right-of-way (Figure 2.2-6). Transmission line segments requiring upgrades are shown in Figure 2.2-7. Ten 161 kV transmission lines over a distance of 191 mi would require uprating. An additional seventeen 161 kV transmission lines over a distance of 131 mi would require uprates or reconductoring. Modifications related to uprating and reconductoring would affect a total of 2317 and 1589 ac respectively. Finally, one section of a 12.7 mi long transmission line would require rebuilding covering a total of 154 ac. All actions related to offsite transmission line modifications would occur within the existing transmission line rights-of-way. Detailed information regarding changes associated with the transmission lines, including lengths of individual segments affected, is discussed in Section 3.7.

Additional offsite areas include the rail offloading area, the Barge/Traffic Area, and several existing borrow pits. TVA anticipates utilizing the EnergySolutions Heritage Railroad rail siding near the CRN Site for deliveries. The refurbishment of this rail siding is addressed in the DOE's Environmental Assessment, Transfer of Land and Facilities Within the East Tennessee Technology Park and Surrounding Area, Oak Ridge, Tennessee (DOE/EA-1640) (Reference 2.2-28).

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Supplemental Information Regarding Terrestrial Ecology

Roadway improvements are required in the Barge/Traffic Area and an existing barge terminal (that was used for TN 58 construction) in that area is to be refurbished (Figure 2.2-6). Based on the USGS land-cover classification standards and the 2006 National Land Cover Dataset, land use and land cover in the Barge/Traffic Area is categorized and shown in Table 2.2-1 and Figure 2.2-5. Forested land (deciduous, evergreen, or mixed forest) accounts for approximately 53 percent of the Barge/Traffic Area. Wetlands (emergent herbaceous or woody wetlands) occupy approximately 5 percent of the Barge/Traffic Area. Other vegetated undeveloped land (grassland/herbaceous or shrub/scrub) totals less than 1 percent of the Barge/Traffic Area. Land classified as cultivated crops and pasture/hay total approximately 16 percent of the Barge/Traffic Area. Open water or barren land occupy approximately 5 percent of the Barge/Traffic Area. The remaining approximately 21 percent of the Barge/Traffic Area is classified as developed (high, medium, or low intensity, or open space). The Barge/Traffic Area and the rail offloading area are located within the 6 mi CRN Site vicinity.

Fill material will be required for the CRN Site. In addition to potentially using borrow material from the CRN Site, offsite borrow sources may be used. The volume of fill material and selection of the source for fill material will be dependent on the backfill plan and the required material properties identified by analyses performed in support of the COLA. Material excavated from portions of the CRN Site will be characterized in accordance with the backfill plan to determine whether the material has the characteristics and provides the needed quantities for use as fill on the site. If additional fill material is needed from offsite, the borrow source(s) will be selected based on material properties and quantities available at the potential source locations. The soil quality at each potential borrow site will be required to meet the criteria for acceptability for use as fill material at the CRN Site.

Offsite borrow areas that have been identified for possible use are shown in Figure 2.2-8. ~~Plans also include the use of offsite borrow pits as source material for onsite fill.~~ At least two of ~~T~~the borrow sites identified in Figure 2.2-8 are currently being utilized in support of other TVA projects. The total acreage of these nine potential borrow sites is 227 ac. The combined volume of fill material present in the disturbed and fully permitted offsite borrow areas is anticipated to meet the volume of fill material that would be needed for the CR SMR Project. Therefore, it is unlikely that existing borrow areas would need to be expanded beyond currently permitted boundaries or that new borrow areas would need to be opened to accommodate the CR SMR Project.

~~In order to be used for fill at the CRN Site, the soil quality for each potential borrow site would be required to meet the acceptable criteria for fill materials. The Barge/Traffic Area and the rail offloading area are located with the 6 mi CRN Site vicinity.~~ The borrow pits are located within the 50 mi CRN Site region.

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Supplemental Information Regarding Terrestrial Ecology

ER Section 2.9 and Subsection 2.9.4 are being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

2.9 RELATED FEDERAL PROJECT ACTIVITIES

The purpose of this section is to identify any federal or other activities within the region that are related to the Clinch River (CR) Small Modular Reactor (SMR) Project and could have cumulative impacts on the proposed action. Actions related only to the granting of licenses, permits, or approvals by other federal agencies are not considered in this review. This section also determines the potential need for another agency to cooperatively participate in the Environmental Report (ER) process.

- For the purposes of this section of the ER, the activities or projects evaluated are limited to federal projects or activities that meet the following criteria:

- Federal projects or activities associated with acquisition and/or use of the proposed project site and transmission corridors or of any other offsite property needed for the proposed project

- Federal projects or activities that are required either to provide an adequate source of facility cooling water or to ensure an adequate supply of cooling water is available over the operating lifetime of the facility

- Federal projects or activities that must be completed as a condition of facility construction or operation

- Federal agency plans or commitments that result in significant new power purchases within the applicant's service area that have been used to justify a need for power

- Federal projects that are contingent on facility construction and operation

Three federal activities associated with the CR SMR Project were identified that meet one or more of the criteria listed above. These federal activities are: (1) roadway modifications to Tennessee State Highway (TN) 58, Bear Creek Road, and West (W) Bear Creek Road; (2) refurbishment of the barge terminal along Bear Creek Road; and (3) new transmission lines and substations. These three identified activities are described in the following sections.

~~A fourth potential federal activity is acquisition of borrow material from federal lands. Although nine potential borrow areas have been identified, it is unknown at this time if borrow material from the currently identified borrow areas would still be available at the time of construction or if new borrow areas would have to be identified. If any borrow area on federal property is proposed for use as a borrow material source prior to the preparation of the Combined License Application (COLA), then the acquisition of borrow material will be identified as a federal activity and provided at COLA~~.

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2.9.4 Summary

Aside from the three identified federal activities discussed above ~~and the potential for borrow sites to be located on federal property~~, no other activities associated with the CR SMR Project have been identified.

The three activities discussed above require coordination with other federal agencies. However, the federal agencies involved in these additional activities do not need to cooperatively participate in the preparation of the ER or the U.S. Nuclear Regulatory Commission's (NRC) Environmental Impact Statement process.

In September 2008, NRC and the U.S. Army Corps of Engineers (USACE) signed an updated memorandum of understanding regarding environmental reviews for authorizations to construct and operate nuclear power plants (Reference 2.9-2). No federal agencies other than USACE have been identified as potential cooperating agencies. However, some collaboration with federal agencies may be required as part of the COLA preparation due to the need for permits, authorizations, and consultations associated with construction or operation of two or more SMRs. Permits, authorizations, and consultations are discussed in Section 1.2.

ER Subsection 4.1.2 is being revised as indicated. Strikethroughs indicate text to be deleted. Underlines indicate text to be added.

4.1.2 Transmission Corridors and Offsite Areas

Transmission lines are discussed in Subsection 2.2.3 and Section 3.7. Impacts associated with onsite transmission line changes and the new underground 69 kV transmission line are described in Subsections 4.1.1.1 and 4.1.1.2 respectively. As described in Section 3.7, several offsite transmission lines in the region will be uprated. Changes to offsite land use due to construction along the transmission corridors will include the re-clearing of the existing transmission line ROWs. Additional information on transmission corridors is discussed in Section 5.6. Impacts to offsite land use associated with uprating transmission lines would be SMALL.

As discussed in Subsection 2.2.3, ~~F~~fill material will be required for the CRN Site. ~~,~~ In addition to potentially using borrow material from the CRN Site, offsite borrow sources may be used. The volume of fill material and selection of the source for fill material will be dependent on the backfill plan and the required material properties identified by analyses performed in support of the combined license application (COLA). Material excavated from portions of the CRN Site will be evaluated in accordance with the backfill plan to determine whether the material provides characteristics and quantities needed for use as fill on the site. If additional fill material is needed from offsite, the borrow source(s) will be selected based on the properties and quantities of fill material available at the potential source locations. The soil quality at each potential borrow site will be required to meet the criteria for acceptability for use as fill material at the CRN Site. Nine possible offsite borrow areas have been identified and are shown in Figure 2.2-8. The total acreage of these nine potential borrow sites is 227 ac. The combined volume of fill material present in the disturbed and fully permitted offsite borrow areas is anticipated to meet the volume of fill that would be needed for the CR SMR Project. Therefore, it is unlikely that any existing borrow areas would need to be expanded beyond currently

permitted boundaries or that any new borrow areas would need to be opened to accommodate the CR SMR Project.~~The selection of a borrow source is highly dependent upon the backfill plan and the resulting material properties required by analysis that will be done in support of the combined license application (COLA). Possible borrow sources include, but are not limited to the CRN Site and the borrow pits described in Subsection 2.2.3 and shown in Figure 2.2-8. The borrow source selected will be based on material properties and quantities at specific locations. Material excavated from portions of the CRN Site would be characterized in accordance with the backfill plan to confirm that the excavated material meets the criteria for placement onsite as fill material.~~

If ~~excavated~~ material excavated on the CRN Site is not suitable for fill, it ~~would~~ will be disposed of in accordance with TVA's waste management program and regulatory requirements or, if appropriate, in the onsite landfill. In Tennessee, borrow areas are subject to permitting under the State Stormwater Pollution Prevention regulations, Aquatic Resource Alteration Regulations depending upon proximity to aquatic resources, and state mining regulations, if applicable, depending upon the material to be excavated. Each of these state permitting programs includes environmental protection requirements that must be met during operation of the borrow area facilities. Based on compliance with these permitting programs and the expected availability of sufficient borrow material from existing borrow sites, ~~such that~~land use impacts associated with the potential use of borrow areas would be SMALL.