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 Index Field:
 Final EA and FONSI

 Project Name:
 Muscle Shoals PSS Warehouse

MUSCLE SHOALS PSS WAREHOUSE

FINAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

Colbert County, Alabama

Prepared by: TENNESSEE VALLEY AUTHORITY Chattanooga, Tennessee

January 2019

To request further information, contact: W. Douglas White NEPA Compliance Tennessee Valley Authority 400. W Summit Hill Drive Knoxville, TN 37902 Phone: 865-632-2252 E-mail: wdwhite0@tva.gov This page intentionally left blank.

Purpose and Need for Action

TVA is proposing to build a new Power Service Shop (PSS) Warehouse on the Muscle Shoals Reservation to support the relocation of spare turbine rotors and other large generating components from throughout the Valley to a centralized location. Currently, TVA does not have a consistent approach for the storage of turbine rotors and large components used at all TVA generating facilities. By relocating the spare generating equipment to a central location within a new warehouse at Muscle Shoals, TVA would reduce transportation costs, safety risks, and component damage risks that result from transporting equipment throughout the Valley.

Proposed Action

The proposed project would consist of building a new, 60,000 square foot warehouse near the existing PSS on TVA's Muscle Shoals Reservation in Colbert County, Alabama. The warehouse would house turbine rotors and large components for all generating sites so they would be centrally located.

While a final design for the proposed warehouse has not been made, some design criteria have been established. The warehouse would be a steel framed building with insulated exterior walls and roofing. The floor of the building must be able to support a 250 ton bridge crane. The clearance of the building must accommodate the bridge crane's 30 foot hook height, which would be installed and span the full length of the warehouse. The storage area within the warehouse would have a minimum of 24 feet vertical clearance. A portion of the storage area would be enclosed with a rolling door/gate to provide controlled storage of nuclear components.

The building would be ventilated only and would not have heating or cooling. Above ground electric lines may be installed to provide electric service to the building. A driveway would be installed to access Reservation Road from the warehouse.

The majority of the proposed location for the warehouse is a paved parking lot that serves the Muscle Shoals PSS. There are mowed lawns adjacent to the parking lots and dense vegetation including mature trees on the eastern portion of the project. The location of the proposed warehouse is shown in Figure 1-1.



Figure 1-1: Proposed Location of the Muscle Shoals PSS Warehouse.

TVA is also considering taking no action (i.e., not building a warehouse and not relocating turbine rotors to a central location). The no action alternative is inconsistent with TVA's goals and objectives for the management of generation equipment, but is included in this analysis to provide a baseline for comparison of project impacts and benefits. TVA evaluated different configurations of the new PSS warehouse surrounding the existing warehouse, and decided that ultimately this would be the best location for moving the equipment to and from the warehouse to sites across the Valley. Currently, TVA does not have a consistent approach for the storage of turbine rotors and large components used at all TVA generating facilities. By relocating the spare generating equipment to a central location within a new warehouse at Muscle Shoals, TVA would reduce transportation costs, safety risks, and component damage risks that can result from transporting equipment from scattered locations throughout the Valley.

Environmental Impacts

TVA has reviewed the proposed project and documented potential environmental impacts related to the project in the attached Checklist (Attachment 3). The Checklist identifies the resources present in the project area and documents TVA's determination that the proposal would not significantly affect these resources. Impacts to the following resources were evaluated in further detail.

<u>Threatened and Endangered Species</u>: As documented in the Checklist, TVA conducted an initial review of its Natural Heritage Database on July 18, 2018. The review resulted in records for one state-listed species (alligator snapping turtle), records of one federally listed species (gray bat), and one federally protected species (bald eagle) within three miles of the project footprint. Records of one additional federally listed species (red-cockaded woodpecker) exist within Colbert County, Alabama. Additionally, though no records are known within Colbert County, Alabama, the USFWS has determined this county falls within the range of the federally endangered Indiana bat and the federally threatened northern long-eared bat (NLEB).

A field review was completed on July 19, 2018. During this review, no suitable habitat for the alligator snapping turtle nor the red-cockaded woodpecker was found within the project footprint. No bald eagle nests were identified within 660 feet of the project footprint during the field review. No caves or other gray bat roosting structures were found within the project footprint during the field review. Gray bat roosting habitat does not exist within the project footprint; therefore, the gray bat would not be impacted by the proposed actions.

One record of a wading bird colony exists within 3.0 miles of the project footprint. This record is approximately 0.7 miles from the project footprint and would not be impacted by the proposed actions. During the field review no additional heronries or osprey nests were seen within 660 feet of the project footprint. The USFWS also has determined that ten species of migratory birds of conservation concern have the potential to occur in the project area. Suitable habitat exists in the project footprint for three of these identified species: cerulean warbler, prairie warbler, and red-headed woodpecker.

Removal of vegetation has the potential to directly impact individuals should they be nesting or unable to relocate (i.e. juveniles) at the time of vegetation clearing. Clearing is currently proposed for January 2019 when none of these species is likely to be found in the area. Due to the timing of the proposed actions, presence of similarly suitable habitat in the project vicinity, and the relatively small scope of the proposed actions, proposed project actions would not affect populations of migratory birds.

There are no known records of Indiana bats or NLEB within Colbert County, Alabama. In 2016, a transmitter once attached to a migrating Indiana bat was tracked to a warehouse less than a mile from the proposed warehouse footprint. The transmitter is no longer attached to the bat and the fate of the bat is unknown. This suggests Indiana bats may migrate nearby, but does not confirm they are roosting on the Muscle Shoals Reservation.

During the field review, TVA identified two acres of forest scheduled for clearing represent as containing suitable summer roosting habitat for Indiana bats and NLEB. Removal of these suitable summer roost trees may directly and adversely affect Indiana bat and NLEB if removal occurs when bats are present on the landscape. Therefore, removal of these trees must occur between October 15 and March 31 to avoid direct adverse effects. Additional conservation measures associated with this activity must be followed as identified on the Bat Strategy Project Screening Form (Attachment 4) and as outlined in TVA's programmatic ESA Section 7 consultation on federally listed bats and routine actions.

<u>Cultural Resources</u>: A review of the National Register of Historic Places (NRHP) and the Alabama Register of Landmarks and Heritage databases show no properties within a one-half mile radius of the proposed project area or within a direct line of sight. The proposed project area is within one-half mile and in direct line of sight of the TVA Power Service Building (PSB) and the water tower and associated concrete operations building. The PSB has been determined eligible for the NRHP (AHC 2016-0876; Pietak et al. 2002; Thomas et al. 2008; and Wampler et al. 2016) and the water tower, built in the 1950s, has been determined to be a contributing resource of the NRHP-eligible Muscle Shoals Historic District (AHC 0-0038). TVA's land acquisition maps show the entire proposed project area, along with areas west of Reservation Road, gridded off with multiple streets and individual house lots as part of the "Wilson Dam Reservation Addition Area No. 2". Although subdivided into lots, no structures are mapped. A historical USGS topographic map from 1936 shows Reservation Road and two railroad lines east of and parallel to the road. The 1958 7.5-minute quadrangle map shows the PSB and water tower and associated access roads.

Because of the potential for adverse effect to historic properties, TVA personnel conducted a field review on July 5, 2018. Pedestrian survey and excavation of shovel test pits (STPs) did not recover artifacts. No artifacts related to the "Wilson Dam Reservation Addition Area No. 2" indicated on the TVA acquisition maps were found; thus, it appears that the communities were planned but never built.

Interpretation of encountered soils clearly indicates that the proposed project area has been heavily disturbed. Therefore, intact significant archaeological deposits are highly unlikely.

The field visit also confirmed that the PSB and the water tower are the only extant resources within a direct line of sight of the APE. The setting near the TVA Power Service Center Building and water tower is not pristine; approximately 29 additional TVA facilities, buildings, and structures have been constructed adjacent to or in close proximity to the area since 1971 (Wampler et al. 2016:ii).

The proposed project would have an indirect (visual) effect on the district and would alter the existing landscape; however, these changes are not out of character with the property's current industrial setting. Thus, TVA finds that the undertaking will not result in an adverse effect on the NRHP-eligible TVA Power Service Building and water tower.

Through consultation, the Alabama Historical Commission (AHC) concurred on October 22, 2018 that the proposed warehouse construction would not have an adverse effect to historic properties (Attachment 4). TVA also consulted with federally recognized Native American tribes concerning the proposed project. No responses were received.

<u>Solid and Hazardous Waste</u>: The existing Power Service Shop has a RCRA Hazardous Waste Permit that requires a notification for all modifications to the Power Services Shop site. This includes new additions, demolitions, modifications to the existing 71 Solid Waste Management Units (SWMUs) and 9 Areas of Contamination (AOCs) located within the Muscle Shoals Reservation. SWMUs 44, 45, and 46 are located at or east of the PSS railroad track. SWMU 45 and 46 are east of the tracks and are not anticipated to be impacted. Routine railroad track maintenance or adding additional fill material above SWMU 44 is permissible under the existing RCRA Hazardous Waste Permit.

TVA plans to avoid the existing SWMU's; however, if contact with one of the SWMU's is unavoidable, TVA would coordinate with the Alabama Department of Environmental Management (ADEM) and TVA's Hazardous Waste Specialist.

Notification of the proposed PSS Warehouse project was sent to the Alabama Department of Environmental Management on July 19, 2018. The Alabama Department of Environmental Management responded on August 8, 2018 (Attachment 4) and concurred that TVA is in compliance with the existing RCRA Permit for construction at this site (specifically Permit Condition I.C.12a).

Mitigation Measures

In addition to standard construction Best Management Practices (BMPs), the following mitigation measures would be implemented for the proposed project:

Threatened and Endangered Species:

• TVA determined that the proposed action would result in the direct loss of 35 trees that may be suitable NLEB and Indiana bat summer roosting tree habitat. Any potentially suitable Indiana bat and NLEB summer roosting habitat would be selectively removed between the dates of October 1 and April 14.

Solid and Hazardous Waste:

 The Solid Waste Management Units located within the project site will not be disturbed. A copy of the existing RCRA Permit for the MSF Site will be provided to the contractor along with the exact location of the existing solid waste management units for avoidance. If contact is made with one of the existing SWMU's, the contractor will immediately stop work and notify MSF TVA Environmental & Hazardous Waste Specialists. Any newly identified contamination (drums, electrical equipment, discolorations/odors, etc.) will be disclosed to TVA Specialists for review. ADEM will be notified according to the PSC RCRA Permit requirements.

Conclusion and Finding

Based on the findings listed above and the analyses in the attached checklist, we conclude that the proposed action to construct a new Warehouse at the Muscle Shoals Reservation would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.

anadren

Lana D Bean, Manager NEPA Program and Valley Projects Tennessee Valley Authority

01/16/19 Date Signed

TVA Preparers

Damien Simbeck – Heritage Review and Watershed Specialist Freddie Bennett –Watershed Specialist Aurora Pulliam – Recreation Specialist Edward Wells – Archaeologist Lori Whitehorse- Environmental Program Manger Caitlin Fitzpatrick – NEPA Specialist

List of Attachments

Attachment 1 - Project Map Attachment 2 - Project Drawings Attachment 3 - Environmental Review Checklist Attachment 4 – Consultation Attachment 1 – Project Map



EXTENT OF DISTURBED AREA



FILLED AREA ONLY, NO EXCAVATION AS REQUIRED

SWML SWMU SWMU 44 Attachment 2 – Project Drawings





Attachment 3 – Environmental Review Checklist (CEC)

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number			Tracking Nu	mber (NEPA Administration Use Only)
				39098	
Form Preparer		Project Initiator/Manager		Business l	Jnit
Lori A Whitehorse		Kevin L Collins		Generation	n Construction - Major Projects Gen
Project Title				-	Hydrologic Unit Code
Muscle Shoals PSS Warehouse construction					
Description of Proposed Action (Include Anticipated Dates of Implementation)		s of Implementation)		Contir	nued on Page 3 (if more than one line)
For Proposed Action See Attachments and	References				
Initiating TVA Facility or Office			TVA Business Units Involved in Project		nits Involved in Project
Muscle Shoals Power Service Center		EE8	&SS - Genera	tion Projects	
Location (City, County, State)					
AL, Located northwest of the PSS and west the water tower.					

Parts 1 through 4 verify that there are no extraordinary circumstances associated with this action:

Part 1. Project Characteristics

ls th	ere evidence that the proposed action	No	Yes	Commit- ment	Information Source for Insignificance
	1.ls major in scope?	Х			Whitehorse, Lori A. 06/20/2018
	2.Is part of a larger project proposal involving other TVA actions or other federal agencies?	Х			Whitehorse, Lori A. 06/20/2018
*	3. Involves non-routine mitigation to avoid adverse impacts ?	Х		No	Whitehorse, Lori A. 06/20/2018
	4.Is opposed by another federal, state, or local government agency?	Х			Whitehorse, Lori A. 06/20/2018
*	5.Has environmental effects which are controversial?	Х			Whitehorse, Lori A. 06/20/2018
*	6.Is one of many actions that will affect the same resources?	Х			Whitehorse, Lori A. 06/20/2018
	7.Involves more than minor amount of land?	Х			Whitehorse, Lori A. 06/20/2018

*If "yes" is marked for any of the above boxes, consult with NEPA Administration on the suitability of this project for a categorical exclusion.

Part 2. Natural and Cultural Features Affected

Would the proposed action	No	Yes	Permit	Commit- ment	Information Source for Insignificance
 Potentially affect endangered, threatened, or special status species? 		х	No	No	For comments see attachments
2.Potentially affect historic structures, historic sites, Native American religious or cultural properties, or archaeological sites?		x	No	No	For comments see attachments
3.Potentially take prime or unique farmland out of production?	Х		No	No	Whitehorse, Lori A. 06/20/2018
4.Potentially affect Wild and Scenic Rivers or their tributaries?	Х		No	No	Whitehorse, Lori A. 06/20/2018
5.Potentially affect a stream on the Nationwide Rivers Inventory?	Х		No	No	Whitehorse, Lori A. 06/20/2018
6.Potentially affect wetlands?	Х		No	No	Whitehorse, Lori A. 06/20/2018
7.Potentially affect water flow, stream banks or stream channels?	Х		No	No	Whitehorse, Lori A. 06/20/2018
8.Potentially affect the 100-year floodplain?	Х		No	No	Whitehorse, Lori A. 06/20/2018
9.Potentially affect ecologically critical areas, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, or trails?	х		No	No	Whitehorse, Lori A. 06/20/2018
10.Contribute to the spread of exotic or invasive species?	Х		No	No	For comments see attachments
11.Potentially affect migratory bird populations?		Х	No	No	For comments see attachments
12.Involve water withdrawal of a magnitude that may affect aquatic life or involve interbasin transfer of water?	Х		No	No	Whitehorse, Lori A. 06/20/2018
13.Potentially affect surface water?	Х		No	No	For comments see attachments
14.Potentially affect drinking water supply?	Х		No	No	Whitehorse, Lori A. 06/20/2018
15.Potentially affect groundwater?	Х		No	No	Whitehorse, Lori A. 06/20/2018
16.Potentially affect unique or important terrestrial habitat?	Х		No	No	For comments see attachments
17.Potentially affect unique or important aquatic habitat?	Х		No	No	Whitehorse, Lori A. 06/20/2018

Part 3. Potential Pollutant Generation

Would the proposed action potentially (including accidental or unplanned)		Yes	Permit	Commit- ment	Information Source for Insignificance
1.Release air pollutants?	Х		No	No	Whitehorse, Lori A. 06/20/2018
2.Generate water pollutants?	Х		No	No	For comments see attachments
3.Generate wastewater streams?	Х		No	No	Whitehorse, Lori A. 06/20/2018
4.Cause soil erosion?		Х	No	No	For comments see attachments
5.Discharge dredged or fill materials?	Х		No	No	Whitehorse, Lori A. 06/20/2018
6.Generate large amounts of solid waste or waste not ordinarily generated?		х	No	No	For comments see attachments
7.Generate or release hazardous waste (RCRA)?	Х		No	No	Whitehorse, Lori A. 08/14/2018
8.Generate or release universal or special waste, or used oil?	х		No	No	Whitehorse, Lori A. 08/14/2018
9.Generate or release toxic substances (CERCLA, TSCA)?	Х		No	No	Whitehorse, Lori A. 06/20/2018
10.Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	х		No	No	Whitehorse, Lori A. 06/20/2018
11.Involve disturbance of pre-existing contamination?	Х		No	No	For comments see attachments
12.Generate noise levels with off-site impacts?	Х		No	No	Killen, Christopher R. 10/24/2018
13.Generate odor with off-site impacts?	Х		No	No	Whitehorse, Lori A. 06/20/2018
14.Produce light which causes disturbance?	Х		No	No	Whitehorse, Lori A. 06/20/2018
15.Release of radioactive materials?	Х		No	No	Whitehorse, Lori A. 06/20/2018
16.Involve underground or above-ground storage tanks or bulk storage?	х		No	No	Whitehorse, Lori A. 06/20/2018
17.Involve materials that require special handling?	Х		No	No	Whitehorse, Lori A. 06/20/2018

Part 4. Social and Economic Effects

			Permit	Commit-	Information Source for
Would the proposed action		Yes		ment	Insignificance
1.Potentially cause public health effects?	Х			No	Whitehorse, Lori A. 06/20/2018
2. Increase the potential for accidents affecting the public?		Х		No	For comments see attachments
3.Cause the displacement or relocation of businesses, residences, cemeteries, or farms?	Х			No	Whitehorse, Lori A. 06/20/2018
4.Contrast with existing land use, or potentially affect resources described as unique or significant in a federal, state, or local plan?	х			No	Whitehorse, Lori A. 06/20/2018
5.Disproportionately affect minority or low-income populations?	Х			No	Whitehorse, Lori A. 06/20/2018
6. Involve genetically engineered organisms or materials?	Х			No	Whitehorse, Lori A. 06/20/2018
7. Produce visual contrast or visual discord?	Х			No	Whitehorse, Lori A. 10/31/2018
8.Potentially interfere with recreational or educational uses?	Х			No	Whitehorse, Lori A. 06/20/2018
9.Potentially interfere with river or other navigation?	Х		No	No	Whitehorse, Lori A. 06/20/2018
10.Potentially generate highway or railroad traffic problems?	Х			No	Whitehorse, Lori A. 06/20/2018

Part 5. Other Environmental Compliance/Reporting Issues

Would the proposed action	No	Yes	Commit- ment	Information Source for Insignificance
1.Release or otherwise use substances on the Toxic Release Inventory list?	Х		No	Whitehorse, Lori A. 06/20/2018
2. Involve a structure taller than 200 feet above ground level?	Х		No	Whitehorse, Lori A. 06/20/2018
3. Involve site-specific chemical traffic control?	Х		No	Whitehorse, Lori A. 08/14/2018
4.Require a site-specific emergency notification process?	Х		No	Whitehorse, Lori A. 08/14/2018
5.Cause a modification to an existing environmental permit or to existing equipment with an environmental permit or involve the installation of new equipment/systems that will require a permit?		x	No	For comments see attachments
6.Potentially impact operation of the river system or require special water elevations or flow conditions??	х		No	Whitehorse, Lori A. 06/20/2018
7.Involve construction or lease of a new building or demolition or renovation of existing building (i.e. major changes to lighting, HVAC, and/or structural elements of building of 1000 sq. ft. or more)?		x	No	For comments see attachments

Parts 1 through 4: If "yes" is checked, describe in the discussion section following this form why the effect is insignificant. Attach any conditions or commitments which will ensure insignificant impacts. Use of non-routine commitments to avoid significance is an indication that consultation with NEPA Administration is needed.

An 🔲 EA or 📋 EIS Will be prepared.

Based upon my review of environmental impacts, the discussion attached, and/or consultations with NEPA Administration, I have determined

that the above action does not have a significant impact on the quality of the human environment and that no extraordinary circumstances exist.

Therefore, this proposal qualifies for a categorical exclusion under Section 5.2. of TVA NEPA Procedures.

07/27/2018

Project Initiator/Manager			Date
Kevin L Collins			
TVA Organization	E-mail	Teleph	one
EE&SS	klcollins@tva.gov		
	-		

Environmental Concurrence Reviewer

Preparer Closure

Micheal A Gean

Signature

Signature

Other Environmental Concurrence Signatures (as required by your organization)

Signature

Signature

Signature

Signature

Other Review Signatures (as required by your organization)

Lori A Whitehorse 10/31/2018	
Signature	Signature
Signature	Signature
Signature	Signature

Attachments/References

Description of Proposed Action Continued from Page 1

A new warehouse proposed to be built near the existing PSS on Muscle Shoals Res. Please see attached map. The warehouse will house turbine rotors & large components for all sites so they are centrally located. This approach will reduce transport costs, safety risks, & component damage risks. The new storage warehouse is to be approximately 60,000 SF steel framed building w/ insulated exterior walls & roof. The floor must support 250 ton loading. A new 250 ton bridge crane with a 30' hook height will run the full length of the warehouse. The building will be ventilated only. The existing rail lines will be repaired/upgraded & add. rail line will be installed so equipment can be transported from existing PSS shop to new warehouse. Aboveground electric lines may be installed & is dependent on building location in comparison to existing power. This CEC was opened for tracking purposes only and an abbreviated EA will be written for this project. Tree clearing will only occur between Oct 15 & March 31.

CEC General Comment Listing

1.	Map show	ving project area of disturbance.		
2.	By: Lori A Files: PPD withe	Whitehorse polygon area with a key (002).pdf out specs. Full version is available upon request.	06/20/2018 06/20/2018	1,434.41 Bytes
3.	By: Lori A Files: Bat Strat	Whitehorse Project Planning Document - Turbine Rotor Storage Warehouse 071118 wo specs.pdf Form	07/13/2018 07/13/2018	2,213.75 Bytes
4.	By: Lori A Files: Notificatio	Whitehorse 204538_Muscle Shoals PSS Warehouse Construction_Project-Screening-Form_TVA-Bat- Strategy_2018-05-08.pdf In Letter to ADEM	07/19/2018 07/19/2018	1,717.28 Bytes
5.	By: Kenne Files: ADEM res	eth F Hickerson PSC Notification Requirement - PSS Storage Building.pdf sponse letter approving construction	07/27/2018 07/27/2018	1,141.67 Bytes
	By: Kenne Files:	eth F Hickerson SharpLand@adem.state.al.us_20180808_140845.pdf	09/28/2018 09/28/2018	603.42 Bytes

CEC Comment Listing

Part 2 Comments

1. A review of terrestrial animal species in the TVA Natural Heritage database on July 18, 2018, resulted in records for one state-listed species (alligator snapping turtle), records of one federally listed species (gray bat), and one federally protected species (bald eagle) within three miles of the project footprint. Records of one additional federally listed species (red-cockaded woodpecker) exist within Colbert County, Alabama. Additionally, though no records are known within Colbert County, Alabama, the USFWS has determined this county falls within the range of Indiana bat and northern long-eared bat. Proposed actions would not affect alligator snapping turtle, gray bat, bald eagle, or red-cockaded woodpecker. Proposed actions may affect and are likely to adversely affect Indiana bat and northern long-eared bat due to the removal of potentially suitable habitat. See attached input for species impact analysis. See other comments for Section 7 programmatic consultation with USFWS for TVA's routine actions and federally listed bats. By: Elizabeth B Hamrick 09/17/2018 CEC_39098_Part2Que1_TZ_Input.docx Files: 09/17/2018 16.70 Bytes

5.	be modified.	40/04/0040	
5.			
	If newly found contamination is identified, the current PSC RCRA Ha	zardous Waste Permit will have to	
Part 5 Commer	its		
	away from the equipment. By: Lori A Whitehorse	08/14/2018	
2.	Appropriate barriers and notifications will be maintained based on lev	vel of public use to keep the public	
Part 4 Commer	its		
	PSC SWMU 46 Pump station B23047.pdf	10/24/2018	145.05 Bytes
	PSC SWMU 45 Former Drum Storage Area B23066.pdf	10/24/2018	263.26 Bytes
	Files: PSC SWMU 44 TCE Degreasing Area B23065.pdf	10/24/2018	294.53 Bytes
	By: Christopher R Killen	10/24/2018	
	SWMU 44 with site environmental review/approval. Newly identified modification to the existing RCRA permit.	contamination will require a	
	AOCs. SWMUs 44, 45, and 46 are located at or east of the PSS rail	road track. SWMU 44 overlays the	
	PSC site. This includes new additions, demolitions, modifications to	the existing 71 SWMUs and 9	
11.	The PSC has a RCRA Hazardous Waste Permit that requires a notif	ication for all modifications to the	
	environmental should be contacted regarding their preference.	09/28/2018	
6.	Soil cuttings will be generated. Can be spread on the surface or dru	mmed for removal. Reservation	
	require minor re-grading to till in ruts and re-seeding. The extent of the minimized. If >1 acre is disturbed, a Construction Stormwater Permit By: Lori A Whitehorse	ne site disturbance will be will be required. 08/14/2018	
4.	Any surface soil disturbance will be repaired and returned to the pre-	investigation condition which may	
	By: Chad H Reed	07/27/2018	
2.	BMPs to be utilized to contain any pollutants		
Part 3 Commer	its		
Dert 6.0	found during field reviews within the project footprint. No other habita animals have been identified within 3 miles of the proposed project. proposed project would not impact unique or important terrestrial hab By: Elizabeth B Hamrick	Activities associated with the oitats. 09/17/2018	
16.	There are records of two caves within 3.0 miles of the project footprin approximately 1.5 miles from the project footprint and would not be in No additional caves or derelict structures that may provide roosting h	nt. The closest cave is mpacted by the proposed actions. mabitat for imperiled bats were	
	By: Chad H Reed	07/27/2018	
13.	A construction stormwater permit will be required if total disturbance	is more than 1 acre.	
	clearing. Clearing is currently proposed for January 2019 when none found in the area. Due to the timing of the proposed actions, presen project vicinity, and the relatively small scope of the proposed actions not affect populations of migratory birds. By: Elizabeth B Hamrick	e of these species are likely to be ce of similarly suitable habitat in the s, proposed project actions would	9
	During the field review no additional heronries or osprey nests were a footprint. The USFWS also has determined that ten species of migra have the potential to occur in the project area. Impacts to bald eagle 1. Suitable habitat exists in the project footprint for three of these ide prairie warbler, and red-headed woodpecker. Individual migratory buse the project action areas for foraging or nesting. Removal of veget impact individuals should they be nesting or unable to relocate (i.e. in	seen within 660 feet of the project atory birds of conservation concern e are addressed in Part 2 Question entified species: cerulean warbler, rds of conservation concern may etation has the potential to directly uveniles) at the time of vegetation	
11.	By: Elizabeth B Hamrick One record of wading bird colony exists within 3.0 miles of the project approximately 0.7 miles from the project footprint and would not be in	09/17/2018 of footprint. This record is mpacted by the proposed actions.	
10.	Based on review of the actions, site location information, maps, phot proposed project would not contribute to the spread of exotic or inva-	ographs, and a field review, the sive terrestrial animal species.	16.19 Bytes
	"CEC39098_CID73766_Section106.pdf" for supporting documentation By: Michael Angst	on. 10/23/2018	
2.	_Bat_Strategy_2018.09.17.pdf Notification_CEC_39098_TVA_Bat_Strategy_20180911.p TVA finds the undertaking will have no effect to historic properties.	df 09/17/2018 See attached document	2,628.91 Bytes
	By: Elizabeth B Hamrick Files: Resubmission_CEC_39098_MuscleShoalsWarehouse_T\	09/17/2018 /A 09/17/2018	2,621.85 Bytes
	affect bats, TVA committed to implementing specific conservation me associated conservation measures are identified on pages 6-11 of th Screening Form (attached) and need to be reviewed/implemented as	easures. These activities and e TVA Bat Strategy Project s part of the proposed project.	
	accordance with ESA Section $7(a)(2)$ and completed in April, 2018. F	For those activities with potential to	

CEC Permit Listing

CEC Commitment Listing

Attachment 4 – Consultation



November 13, 2018

Mr. Stephen A. Cobb, Chief Land Division Alabama Department of Environmental Management 1400 Coliseum Blvd Montgomery, AL 36110

Attention: Krishna Morrissette

Dear Mr. Cobb:

TENNESSEE VALLEY AUTHORITY (TVA) POWER SERVICE CENTER (PSC) MUSCLE SHOALS, ALABAMA - AL 2 640 090 005 – STORAGE WAREHOUSE NOTIFICATION REQUIREMENT

Section I. C. 12. a. of the TVA PSC Corrective Action/Post-Closure Permit requires that TVA notify the Alabama Department of Environmental Management (ADEM) as soon as possible of any planned physical alterations or additions to the permitted facility.

In accordance with this provision, TVA – PSC is providing notice of the planned construction of a new turbine storage warehouse and facility upgrades. The new storage warehouse will be a 60,000 square feet steel framed building with insulated exterior walls and roof. Existing rail lines adjacent to the warehouse will be repaired and upgraded. Additional rail lines will be installed so that equipment could be transported from the existing PSS shop to the new warehouse.

The construction of this building and associated activities will not impact any Solid Waste Management Unit (SWMU) or Area of Concern (AOC). Two drawings are enclosed showing the building location.

If you have questions or need additional information, please contact Ken Hickerson at (423) 751 - 7561 or by email at kfhickerson@tva.gov.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Doug Keeling General Manager Power Service Shops

Mr. Stephen A. Cobb, Chief Page 2 November 13, 2018

cc: Mr. Alan Farmer Resource Conservation and Recovery Act Division U.S. Environmental Protection Agency, Region IV Sam Nunn Atlanta Federal Center 61 Forsyth Street, Southwest Atlanta, Georgia 30303-8960

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KFH:LMB

cc: (Electronic distribution) J. L. Brundige, SP 6B-C B. S. Fowler, BR 4A-C T.S. Rudder, BR 4A-C M. A. Gean, OSA 1D-M D. A. Hardy, LCP 1A-BVT K. F. Hickerson, BR 4A-C C.R. Killen, PSC 1B-M M. S. Smelley, BR 4A-C Files, ECM-C





LANCE R. LEFLEUR DIRECTOR



KAY IVEY GOVERNOR

Alabama Department of Environmental Management adem.alabama.gov

1400 Coliseum Blvd. 36110-2400
Post Office Box 301463 Montgomery, Alabama 36130-1463 (334) 271-7700
FAX (334) 271-7950

August 8, 2018

CERTIFIED MAIL # 91 7199 9991 7038 0565 7645

Mr. Doug Keeling, General Manager Tennessee Valley Authority Power Services Shops P.O. Box 1010, PSC 1B Muscle Shoals, Alabama 35662-1010

Re: ADEM Review and Comment:

Notification Letter of Planned Construction, dated July 19, 2018 Tennessee Valley Authority – Power Service Center (TVA – PSC) USEPA I.D. Number: AL2 640 090 005

Dear Mr. Keeling:

The Alabama Department of Environmental Management (ADEM or the Department) has completed the review of the aforementioned letter received on July 20, 2018. It should be noted that TVA submitted this letter to comply with Permit Condition I.C.12a and that the activities for this construction will not be performed within the boundaries of any Solid Waste Management Unit or Area of Concern at TVA–PSC. Based on this review, the Department has no comments concerning the letter at this time with respect to the referenced permit condition.

If there are any questions or concerns regarding this matter please contact Mr. Krishna Morrissette of the Facilities Engineering Section at 334-394-4335 or via email at <u>kmorrissette@adem.alabama.gov</u>.

Sincerely,

Jason Wilson, Chief Governmental Hazardous Waste Branch Land Division

JW/RDA/KMM/tlp

cc/via email: Kenneth Hickerson, TVA Robert Stanley, ADEM Kelley Hartley, ADEM

Birmingham Branch 110 Vulcan Road Birmingham, AL 35209-4702 (205) 942-6168 (205) 941-1603 (FAX) Decatur Branch 2715 Sandlin Road, S.W. Decatur, AL 35603-1333 (256) 353-1713 (256) 340-9359 (FAX)



Shawn Rudder, TVA Robert Morris, US EPA Region IV Daniel Arthur, ADEM

 Mobile Branch

 2204 Perimeter Road

 Mobile, AL 36615-1131

 (251) 450-3400

 (251) 479-2593 (FAX)

Mobile-Coastal 3664 Dauphin Street, Suite B Mobile, AL 36608 (251) 304-1176 (251) 304-1189 (FAX) LANCE R. LEFLEUR DIRECTOR



KAY IVEY GOVERNOR

Alabama Department of Environmental Management adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 = Post Office Box 301463 Montgomery, Alabama 36130-1463 (334) 271-7700 = FAX (334) 271-7950

November 16, 2018

CERTIFIED MAIL # 91 7199 9991 7038 0640 6044

Mr. Doug Keeling, General Manager Tennessee Valley Authority Power Services Shops P.O. Box 1010, PSC 1B Muscle Shoals, Alabama 35662-1010

Re: **ADEM Review:**

Notification Letter of Planned Construction – Turbine Storage Warehouse and Facility Upgrades, dated November 13, 2018 Tennessee Valley Authority – Power Service Center (TVA – PSC) USEPA I.D. Number: AL2 640 090 005

Dear Mr. Keeling:

The Alabama Department of Environmental Management (ADEM or the Department) has completed the review of the aforementioned letter received on November 14, 2018. It should be noted that TVA submitted this letter to comply with Permit Condition I.C.12a. Based on this review, the Department has no comments concerning the letter at this time with respect to the referenced permit condition, and TVA should continue with the planned construction.

If there are any questions or concerns regarding this matter please contact Mr. Krishna Morrissette of the Facilities Engineering Section via email at <u>kmorrissette@adem.alabama.gov</u> or at 334-394-4335.

Sincerely,

Jason Wilson, Chief Governmental Hazardous Waste Branch Land Division

JW/RDA/KMM/tlp

cc/via email: Kenneth Hickerson, TVA Robert Stanley, ADEM Kelley Hartley, ADEM

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Mobile-Coastal 3664 Dauphin Street, Suite B Mobile, AL 36608 (251) 304-1176 (251) 304-1189 (FAX)

Title of File: PSC Notification Requirement - PSS Storage Buildin	α	
Site/Plant/Project Name: Muscle Shoals/PSC	Accession Number (optional):	Work Order Number (optional):
Your Name: Chris Killen	Date Submitted (YYYYMMDD): 20180719	Document Date (YYYYMMDD): 20180719

Instructions:

1) Complete the Environmental Records Processing Form.

- You must include a document date on the form.
- Examples:
 - Annual Report = Dec 31 of year report covers (20XX1231)
 - o Manifests shipment date
 - o Permit & Letters submittal date
- Verify that only one box is checked for the Document Type.

2) Save the entire document as a single PDF file with the Environmental Records Processing Form as the first page.

- Name the file using the following convention: Site/Plant/Project Name_Title of file.pdf.
- Notes:
 - Site/Plant/Project Name see EDMS Acronyms & Facility Abbreviations on <u>Environment InsideNet Page</u> for approved abbreviations

Examples:

- CSC_ 2013 Annual Hazardous Waste Report.pdf
- WLH_February 2014 DMR.pdf.

3) Email the PDF to ENVrecords@tva.gov for processing

For assistance, please contact the Responsible Environmental Person for your site/project, the Environmental Media Specialists (See Contacts on Environment InsideNet Page), or your Business Support Representative.

AIR

- Air Compliance Records
- Air Correspondence
- Air Quality Permits & Applications
- Open Burning Permits & Records
- Refrigeration Technicians Certifications Contractors
- Refrigerant Usage Logs & Surveillance Records
- □ SF6 Emission Reports

ASBESTOS

- □ Asbestos Correspondence
- Asbestos Disposal Compliance Records
- Asbestos Medical Surveillance Records Contractors
- Asbestos Sampling Compliance Records
- Asbestos Worker Certifications Contractors

DRINKING WATER

- Drinking Water Correspondence
- Drinking Water Laboratory Results
- Operator Certifications Contractors

ENDANGERED SPECIES

- Endangered Species Compliance Records
- Endangered Species Correspondence

GROUNDWATER

- Groundwater Permit Compliance Records
- Groundwater Permit Correspondence
- Groundwater Permits & Applications

HAZARDOUS WASTE

- Hazardous Waste Correspondence
- Hazardous Waste Inspection Records
- Hazardous Waste Permit & Applications
- Hazardous Waste Permit Compliance Records
- Mixed Waste Compliance Records
- Mixed Waste Correspondence
- Uniform Hazardous Waste Manifest (UHWM), Land Disposal Restriction Notification (LDRN) Records, and PCB Certificates of Disposals (CDs)
- Waste Characterization & Laboratory Records

NATIONAL HISTORIC PRESERVATION ACT (NHPA)

- NHPA Compliance Records
- NHPA Correspondence
- * PCB waste manifests and certificates of disposal are managed via the hazardous waste document type: "Uniform Hazardous Waste Manifests, Land Disposal Restriction Notification (LDRN) Records, PCB Certificates of Disposal (CDs)"

ENVIRONMENTAL RECORDS PROCESSING FORM

NEPA

- Environmental Assessments-Administrative Records
- Environmental Impact Statements-Administrative Records
- Non-Project NEPA Correspondence

OIL SPILL PREVENTION & COUNTERMEASURES

- Certificates of Applicability of Substantial Harm Criteria
- Facility Response Plan Compliance Records
- Facility Response Plan
 Correspondence
- Oil Transfer Manual Compliance Records
- Oil Transfer Manual Correspondence
- SPCC Correspondence
- SPCC Equipment Testing
- SPCC Plan Compliance Records
- SPCC Plans
- SPCC Spill Records

PCBS*

- PCB Annual Logs
- PCB Cleanup Records
- PCB Compliance Records
- PCB Correspondence

PESTICIDES

- Pesticide Applicator Certifications Contractor
- Pesticide Correspondence
- Pesticide Inventory
- Pesticide Use Compliance Records

SARA TITLE III, EPCRA

- CERCLA Correspondence
- CERCLA Reasonable Care Evaluations
- Form R Toxic Release Inventory Supporting Documentation
- SARA Correspondence

SOLID WASTE (INCLUDES SPECIAL WASTE)

- Solid Waste Correspondence
- Solid Waste Disposal Permits & Applications
- Solid Waste Disposal Compliance Records
- Other Solid Waste Compliance Records (Special Waste Analysis)

UNDERGROUND STORAGE TANKS (USTs)

- UST Certification Forms & Certificates
- UST Closure
- UST Correspondence
- UST Financial Responsibility
- UST Manufacturer's Information for New USTs & Monitoring Systems
- UST Monitoring & Calibration

USED OIL

- Used Oil Correspondence
- Used Oil Sampling Results & Burn Records
- Used Oil Shipping Papers

WATER/WASTEWATER

- Corps of Engineer Permit Correspondence
- Corps of Engineer Permits & Applications
- Corps of Engineer Permit Compliance Records
- Injection Well Permit Correspondence
- □ Injection Well Permits & Applications
- Injection Well Permit Compliance Records
- National Pollutant Discharge Elimination System (NPDES) Correspondence
- □ NPDES Permits & Applications
- NPDES Permit Compliance Records
- Non-Project Water Compliance
- Sewage Treatment Compliance Records
- Sewage Treatment Correspondence
- Sewage Treatment Permits & Applications
- Storm Water Correspondence
- Storm Water Permit Compliance Records
- Storm Water Permits, Notices of Intent, & Applications
- Tennessee Aquatic Resource Alteration Permit Compliance Record
- Tennessee Aquatic Resource Alteration Permit Correspondence
- Tennessee Aquatic Resource Alteration Permits & Applications
- Water Quality Certification Compliance Records
- Water Quality Certification Correspondence
- U Water Quality Certification Permits & Applications

GENERAL/OTHER NON-MEDIA SPECIFIC

- EMS Correspondence
- **EMS** Documents
- Environmental Event Reports (after Reporting to CDO and other required notifications)
- Environmental Audit Correspondence
- Environmental Audit Reports
- Environmental Outlook Documents
- Environmental Performance Reports (Internal)
- Environmental Performance Reports (External)
- Regulatory Issue Summaries
- ERAL Audit Reports
- ERAL Correspondence & Contracts
- External Correspondence on Proposed Regulations or Legislation
- Operational Control Procedures
- □ Self-Assessment Reports
- Utility Group Reports/Meeting Notes
- TVA Environmental Policy
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ENVIRONMENTAL RECORDS PROCESSING FORM

Title of File: PSC - Turbine Storage Warehouse and Facility Upg	rades - ADEM Review Letter	al 아니는 이 친구 바람 (May 11).
Site/Plant/Project Name: Muscle Shoals/PSC	Accession Number (optional):	Work Order Number (optional):
Your Name: Chris Killen	Date Submitted (YYYYMMDD): 20181129	Document Date (YYYYMMDD): 20181116

Instructions:

1) Complete the Environmental Records Processing Form.

- You must include a document date on the form.
- Examples:
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 - Manifests shipment date
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- Verify that only one box is checked for the Document Type.
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KAY IVEY GOVERNOR

Alabama Department of Environmental Management adem.alabama.gov 1400 Coliseum Blvd. 36110-2400 = Post Office Box 301463 Montgomery, Alabama 36130-1463

(334) 271-7700 = FAX (334) 271-7950

November 16, 2018

CERTIFIED MAIL # 91 7199 9991 7038 0640 6044

Mr. Doug Keeling, General Manager Tennessee Valley Authority Power Services Shops P.O. Box 1010, PSC 1B Muscle Shoals, Alabama 35662-1010

Re: ADEM Review:

Notification Letter of Planned Construction – Turbine Storage Warehouse and Facility Upgrades, dated November 13, 2018 Tennessee Valley Authority – Power Service Center (TVA – PSC) USEPA I.D. Number: AL2 640 090 005

Dear Mr. Keeling:

The Alabama Department of Environmental Management (ADEM or the Department) has completed the review of the aforementioned letter received on November 14, 2018. It should be noted that TVA submitted this letter to comply with Permit Condition I.C.12a. Based on this review, the Department has no comments concerning the letter at this time with respect to the referenced permit condition, and TVA should continue with the planned construction.

If there are any questions or concerns regarding this matter please contact Mr. Krishna Morrissette of the Facilities Engineering Section via email at <u>kmorrissette@adem.alabama.gov</u> or at 334-394-4335.

Sincerely,

Jason Wilson, Chief Governmental Hazardous Waste Branch Land Division

JW/RDA/KMM/tlp

cc/via email: Kenneth Hickerson, TVA Robert Stanley, ADEM Kelley Hartley, ADEM

Birmingham Branch 110 Vulcan Road Birmingham, AL 35209-4702 (205) 942-6168 (205) 941-1603 (FAX) Decatur Branch 2715 Sandlin Road, S.W. Decatur, AL 35603-1333 (256) 353-1713 (256) 340-9359 (FAX)



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Mobile-Coastal 3664 Dauphin Street, Suite B Mobile, AL 36608 (251) 304-1176 (251) 304-1189 (FAX)



Alabama Department of Environmental Management Post Office Box 301463 Montgomery, Alabama 36130-1463





U.S. POSTAGE >> PITNEY BOWES ZIP 36104 0001365671 NOV 91 7199 9991 7038 0640 6044

2018

CERTIFIED MAIL

Mr. Doug Keeling Power Services Shop, TVA P.O. Box 1010, PSC 1B Muscle Shoals, AL 35662-1010

35562\$i0i0 B050



11/28/2018 10:14:26 AM

91-19

Tennessee Valley Authority, P.O. Box 1010, Muscle Shoals, AL 35662-1010

July 19, 2018

Stephen A. Cobb, Chief Land Division Alabama Department of Environmental Management 1400 Coliseum Blvd Montgomery, AL 36110

Attention: Krishna Morrissette

Dear Mr. Cobb:

TENNESSEE VALLEY AUTHORITY (TVA) POWER SERVICE CENTER (PSC) MUSCLE SHOALS, ALABAMA - AL 2 640 090 005 - NOTIFICATION REQUIREMENT

Section I. C. 12a of the TVA PSC 2016 Corrective Action/Post-Closure Permit requires that TVA notify the Alabama Department of Environmental Management (ADEM) as soon as possible of any planned physical alterations or additions to the permitted facility.

In accordance with this provision, TVA – PSC is providing notice of geotechnical exploration activities for the planned construction of a Turbine Storage Warehouse. The initial activities include drilling sixteen (16) soil test borings, 12 borings with standard penetration testing (SPT) and 4 offset auger borings in order to collect relatively undisturbed Shelby tube samples. The 12 SPT borings will be advanced to depths of 50 feet below existing ground surface (bgs) or auger refusal, whichever is encountered first. The 4 offset borings will be advanced to 30 feet bgs while attempting to collect five (5) Shelby tube samples from each of the offset borings. These activities will not impact any Solid Waste Management Unit (SWMU) or Area of Concern (AOC). A building and boring location map is enclosed.

If you have questions or need additional information, please contact Ken Hickerson at (423) 751 - 7561 or by email at kfhickerson@tva.gov.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely

Corey Saint Acting General Manager Power Service Shops
Mr. Stephen A. Cobb, Chief Page 2 July 19, 2018

cc: Mr. Alan Farmer Resource Conservation and Recovery Act Division U.S. Environmental Protection Agency, Region IV Sam Nunn Atlanta Federal Center 61 Forsyth Street, Southwest Atlanta, Georgia 30303-8960

KFH:LMB

cc: (Electronic distribution) J. L. Brundige, SP 6B-C B. S. Fowler, BR 4A-C T.S. Rudder, BR 4A-C M. A. Gean, OSA 1D-M D. A. Hardy, LCP 1A-BVT K. F. Hickerson, BR 4A-C C.R. Killen, PSC 1B-M M. S. Smelley, BR 4A-C Files, ECM-C



Finding of No Adverse Effect Documentation Pursuant to 36 CFR 800.11 (e)

Muscle Shoals turbine warehouse construction

7/24/2018

Tennessee Valley Authority 400 West Summit Hill Drive West Tower 11D Knoxville, Tennessee 37902

Predecisional and Deliberative



Finding of No Adverse Effect Documentation Pursuant to 36 CFR 800.11 (e)

Description of The Undertaking

Project Information

TVA CID 73766		State A	labama	
Project Lead A	NGST, MICHAEL	County	AL-Colbert	
Project Reviewer ANGST, MICHAEL		TVA Prope	erty MSF	
Related Project Record(s)		Latitude		34.7873462481
		Longitude		-87.6282553236
Project Type	Project Number			
CEC	39098			

Description of the Undertaking

Short Description	Muscle Shoals turbine warehouse construction				
Long Description A new warehouse is pro Reservation. Please see large components for all approach will reduce tra The new storage wareho with insulated exterior w 250 ton bridge crane wit 30' hook height will run to only. The existing rail lin installed so equipment of warehouse. Abovegrour location in comparison to only and an abbreviated		roposed to be built near the existing PSS on the Muscle Shoals be attached map. The warehouse will house turbine rotors and all sites so they are located in one central location. This ransportation costs, safety risks, and component damage risks. house is to be approximately 60,000 SF steel framed building walls and roof. The floor must support 250 ton loading. A new with a the full length of the warehouse. The building is to be ventilated ines will be repaired/upgraded and additional rail line will be can be transported from the existing PSS shop to the new und electric lines may be installed & is dependent on building to existing power. This CEC was opened for tracking purposes ad EA will be written for this project.	ed		
Federal Involvement		Area of Potential Effects (APE)			
TVA Project, Activity,	, or Program	See Map of Geographic Scope Below			

Steps Taken to Identify Historic Properties

Consultation

Consultation	pleted by TVA							
Consulting Parti	ABSENTEE SHAWNEE TRIBE OF OKLAHOMA; ALABAMA HISTORICAL COMMISSION; ALABAMA QUASSARTE TRIBAL TOWN; ALABAMA-COUSHATTA TRIBE OF TEXAS; CHEROKEE NATION; COUSHATTA TRIBE OF LOUISANA; EASTERN BAND OF CHEROKEE INDIANS; EASTERN SHAWNEE TRIBE OF OKLAHOMA; KIALEGEE TRIBAL TOWN; MUSCOGEE (CREEK) NATION OF OKLAHOMA; POARCH BAND OF CREEK INDIANS; SEMINOLE NATION OF OKLAHOMA; SHAWNEE TRIBE; THE CHICKASAW NATION; THLOPTHLOCCO TRIBAL TOWN; UNITED KEETOOWAH BAND OF CHEROKEE INDIANS IN OKLAHOMA							

Oral History Interviews



Oral History Interviews	No Informant Available						
Background Research							
Environmental Conte	ext						
Topographic Situation	Topographic Situation Upland						
Soil Series and Minimur	n Slope Present						
Previous Disturbance(s)	Construction/Develo	pment; Road/Highway					
Current Land Use(s) Ir	ndustrial; Other (in Not	es); TVA Facility; Unimproved Forest					
Modern Vegetation F	orested; Manicured La	awn; No Vegetation/Cleared					
Archaeological Pote	ntial						
Previous Archaeological	Surveys within APE	Yes					
Previous Archaeological Survey References Shaw, Steven S. 1994 A Cultural Resources Assessment of the Tennessee Valley Authority's Muscle Shoals Reservation, Colbert and Lauderdale Counties, Alabama. Submitted to the Tennessee Valley Authority by Office of Archaeological Services, University of Alabama Museums, Moundville, Alabama.							
Survey Coverage within	APE Unknown						
Presence of Archaeologi	cal Sites No						
Nature and Location of K	nown Archaeological	Site(s) Sites 1Ct332, 1Ct333, 1Ct334, 1Ct337, 1Ct597, 1Ct598 within one-half mile, but nothing in APE.					
Archaeological Potential	if Survey Coverage is	Partial, Unknown, or None Low					
Likely Nature and Locati	on of Archaeological S	Sites if High Potential					
Survey Recommendation	ר TVA Staff Survey	v Required					
Historic Structures/L	andscapes Potent						
Known or potential histol	ric structures/landscap	ses with an unobstructed view of the project:					
Yes							
If "Yes" list modern visual intrusions:							
Industrial development.							
Field Survey Recommer	Field Survey Recommendation (Appendix B, if survey required)						
Survey Required							



Summary of Views Provided by Consulting Parties and Public

Concurrence from AL-SHPO and four tribes

Explanation of Why the Criteria of Adverse Effect Applicable or Inapplicable

A review of the National Register of Historic Places (NRHP) and the Alabama Register of Landmarks and Heritage show no properties within a one-half mile radius of the APE and with a direct line of sight. The APE is within one-half mile and in direct line of sight of the TVA Power Service Building (PSB) and the c. 1950 water tower and associated concrete operations building. The PSB has been determined eligible for the NRHP (AHC 2016-0876; Pietak et al. 2002; Thomas et al. 2008; and Wampler et al. 2016) and the water tower has been determined to be a contributing resource of the NRHP-eligible Muscle Shoals Historic District (AHC 0-0038). TVA's land acquisition maps show the entire APE, along with areas west of Reservation Road, gridded off with multiple streets and individual house lots as part of the 'Wilson Dam Reservation Addition Area No. 2'. Although subdivided into lots, no structures are mapped. A historical USGS topographic map from 1936 shows Reservation Road and two railroad lines east of and parallel to the road. The 1958 7.5-minute quadrangle map shows the PSB and water tower and associated access roads.

Because of the potential for adverse effect to historical properties, TVA personnel conducted a field review on July 5, 2018. Pedestrian survey and excavation of shovel test pits (STPs) did not recover artifacts. Interpretation of encountered soils clearly indicates that the APE has been heavily disturbed. Therefore, intact, significant archaeological deposits are highly unlikely.

The field visit also confirmed that the PSB and the water tower are the only extant resources within a direct line of sight of the APE. The setting near the TVA Power Service Center and water tower is not pristine; approximately 29 additional TVA facilities, buildings, and structures have been constructed adjacent to or in close proximity to the area since 1971 (Wampler et al. 2016:ii). The proposed project will have an indirect (visual) effect on the district and would alter the existing landscape; however, these changes are not out of character with the property is current industrial setting. Thus, TVA finds that the undertaking will not result in an adverse effect on the NRHP-eligible TVA Power Service Building and water tower.

The desktop and field reviews provide a reliable basis for concluding that the proposed warehouse construction will not be an adverse effect to historic properties.

Effect Finding for the Undertaking

No Adverse Effect



Map of Geographic Scope



TVA Archaeological Reconnaissance Form

Administrative Information							
Field Reviewer	ewer ANGST, MICHAEL						
Fieldwork Dates	k Dates Start: 7/5/2018 Finish: 7/6/2018						
Document Date	Date 7/24/2018						
Field Conditions	6						
Percent Disturbed	76-99%						
Surface Visibility	0-25%						
Archaeological I	Field Methodology						
Level of Effort Phase I Reconnaissance							
Archaeological Fiel Methodology	d Pedestrian survey; Opportunistic shovel testing						
Survey Coverage	Partial						
Photographs	Photographs Yes						
Geographic Focus							
Results							
Findings No							
Calculated Total Acres Surveyed							
Reported Total Acres Surveyed							
Reported Total Sho	reline Miles Surveyed						
Summary							



A field review was completed on July 5, 2018. The bulk of the project area is a paved parking lot. The green space between the parking lot and the rail lines on the east and north were visually inspected only. The areas are very narrow and appear to be heavily modified/landscaped.

The western edge of the project area is wooded with a relatively mature canopy. A review of aerial photographs suggest that some trees were growing by at least the late-1990s and that it was heavily wooded by the mid-2000s. Four STPs were excavated on a central north-south axis in the wooded area. A consistent 5-10 cm layer of coal cinders over subsoil was observed in STPs 1, 2, and 3. The profile in STP 4, excavated near the southern end of the woods and surrounded by several large magnolia trees, showed an approximately 12 cm thick layer of topsoil over the layer of coal cinders. Excavation was terminated upon encountering the cinders. This area is near the entrance to the parking area and the TVA Power Service Building and was likely landscaped when the magnolias were planted. Prior to that, it appears that the entire parcel had been stripped of topsoil. The origin of the cinder layer is unknown, but it may be associated with two rail lines that show on the 1936 Florence, Alabama 7.5-minute quad map along the east side of Reservation Road (western edge of the project area). A fifth STP was attempted in the green space between the parking lot and the entrance road to the Power Service Building, but the area was heavily disturbed.

The project area may have been graded and levelled by TVA in preparation of the development of several subdivisions. TVA's land acquisition maps show the entire parcel gridded off with multiple streets and individual house lots as part of the 'Wilson Dam Reservation Addition Area No. 2'. No structures are mapped in the project area, however, and it appears that the communities were planned but never built. The planned subdivisions covered substantial areas on both sides of Reservation Road and a recent archaeological survey west of the road found no evidence of the subdivision (Wampler 2016).

Shovel testing in green spaces indicates that those areas are heavily disturbed and have very low potential for intact cultural resources. All areas shovel tested appear to have been stripped of topsoil sometime in the early- to mid-twentieth century. The same scenario likely exists below the extensive asphalt parking lot. Older aerial photographs and topographic maps do show structures located in the southeastern corner of the parking lot. These areas are now listed as Solid Waste Management Units that have been excavated to significant depths and then backfilled. Intact archaeological deposits associated with those buildings would obviously not be present.

Although the project area is within the bounds of the Muscle Shoals Historic District, the nature of the project (geotechnical drilling) will not have an effect on the District. The absence of NRHP-listed, eligible, potentially eligible or any previously identified archaeological sites, as well as the documented environmental conditions, provide a reliable basis for concluding that the APE and its viewshed contains no effected historic properties.

The undertaking will have no effect to historic properties.

Recommendation

No further archaeological work



Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee 37902

October 17, 2017

Ms. Lee Anne Wofford Deputy State Historic Preservation Officer Alabama Historical Commission 468 South Perry Street Montgomery, Alabama 36130-0900

Dear Ms. Wofford:

TENNESSEE VALLEY AUTHORITY (TVA), POWER SERVICE SHOPS WAREHOUSE PROJECT, MUSCLE SHOALS RESERVATION, COLBERT COUNTY, ALABAMA (34.789430566, -87.6285213605)

In response to your letter dated October 4, 2018 regarding the aforementioned project, you noted that our report did not meet the minimum requirements for Phase I survey and reporting. Please see the enclosed revised report entitled *Cultural Resources Survey of the Muscle Shoals Power Service Shops Warehouse Project, Muscle Shoals Reservation, Colbert County, Alabama.*

If you have any questions or comments, please contact Hallie Hearnes by email, hahearnes@tva.gov or by phone, (865) 632-3463.

Sincerely,

Clinton E. Jones Manager Cultural Compliance

MGA:ABM Enclosures INTERNAL COPIES NOT TO BE INCLUDED WITH OUTGOING LETTER:

Michael G. Angst, WT 11C-K Kevin L. Collins, LP 5G-C Patricia B. Ezzell, WT 7C-K Michael A. Gean, OSA 1D-M Hallie A. Hearnes, WT 11B-K Susan R. Jacks, WT 11C-K M. Susan Smelley, BR 4A-C Dana M. Vaughn, WT 11B-K Lori A. Whitehorse, WT 11B-K ECM, WT CA-K

Cultural Resources Survey of the Muscle Shoals Power Service Shops Warehouse Project, Muscle Shoals Reservation, Colbert County, Alabama

This TVA Field Reconnaissance Survey Form is based on the *Guidelines for Local Surveys: A Basis for Preservation Planning, National Register Bulletin Number 24.* U.S. Department of the Interior, National Park Service, Interagency Resource Division.

Principal Investigator: Michael G. Angst

Authors: Michael G. Angst and Hallie Hearnes

Tennessee Valley Authority 400 West Summit Hill Drive Knoxville, Tennessee 37902 Office: 865.632.6257

Lead Federal Agency: Tennessee Valley Authority

Date of Report: 17 October 2018

I. Introduction

TVA is proposing to construct a new warehouse near the existing Power Service Shops (PSS) on the Muscle Shoals Reservation (34.789430566, -87.6285213605). The warehouse will house turbine rotors and large components for all sites so they are located in one central location. This approach will reduce transportation costs, safety risks, and component damage risks. The new storage warehouse is proposed to be an approximately 60,000 square foot steel-framed building with insulated exterior walls and roof. The floor must support 250 ton loading. A new 250 ton bridge crane with a 30 foot hook height will run the full length of the warehouse. The building is to be ventilated only. The existing rail lines will be repaired or upgraded and an additional rail line will be installed so equipment can be transported from the existing PSS shop to the new warehouse. Aboveground electric lines may be installed and are dependent upon building location in comparison to existing power.

TVA considers area of potential effects (APE) for the proposed undertaking to be the project area and those historic properties within a 0.5-mile radius surrounding the proposed facilities and within the visual line of site to the project area. The APE accounts for both direct and indirect effects. The APE for direct effects encompasses approximately 8.75 acres. It is mapped on the USGS 7.5-minute Florence, Alabama quadrangle and is located in the southwest ¼ of the southeast ¼ of the southwest ¼ of Section 18 and the northeast ¼ of the northwest ¼ of Section 19, Township 3 South, Range 10 West (Figure 1).

II. Archaeology

A. Literature and Document Search

A review of the Alabama site files shows no documented archaeological sites within or immediately adjacent to the project area. Sites 1Ct332, 1Ct333, 1Ct334, 1Ct337, 1Ct597, and 1Ct598, however, are located within a one-half mile radius of the APE. There are no known archaeological surveys of the APE, but approximately 104 acres to the immediate west have recently been surveyed (Wampler et al. 2016). TVA's land acquisition maps show the entire APE, along with areas west of Reservation Road, gridded off with multiple streets and individual house lots as part of the 'Wilson Dam Reservation Addition Area No. 2'. Although subdivided into lots, no structures are mapped (Figure 2).

B. Field Methods, Laboratory Methods, Curation

On July 5, 2018, TVA Cultural Compliance staff conducted a reconnaissance survey of the APE consisting of a pedestrian survey and the excavation of shovel test pits (STPs). The bulk of the project area is a paved parking lot. The green space between the parking lot and the rail lines on the east and north were visually inspected only. These areas are narrow and appear to be heavily modified/landscaped.

The western edge of the project area is wooded with a relatively mature canopy. A review of aerial photographs suggest that some trees were growing by at least the late-1990s and that it was heavily wooded by the mid-2000s. Four shovel test pits (STPs) were excavated on a central north-south axis in the wooded area. A fifth STP was attempted in the green space between the parking lot and

the entrance road to the Power Service Shop (Figure 3). Shovel tests were 30 cm in diameter and excavated to sterile subsoil. All test soils, unless otherwise noted, were screened through 1/4-inch hardware mesh hardware cloth to ensure uniform artifact recovery.

No artifacts were recovered. All field notes, photographs, and other materials will be digitally curated in the TVA Integrated Cultural Database.

C. Results

A consistent 5-10 cm layer of coal cinders over subsoil was observed in STPs 1, 2, and 3 (Figure 4). The profile in STP 4, excavated near the southern end of the woods and surrounded by several large magnolia trees, showed an approximately 12 cm thick layer of topsoil over the layer of coal cinders. Excavation was terminated upon encountering the cinders. This area is near the entrance to the PSS and parking area and was likely landscaped when the magnolias were planted. Prior to that, it appears that the entire parcel had been stripped of topsoil. The origin of the cinder layer is unknown, but it may be associated with two rail lines that show on the 1936 Florence, Alabama 7.5-minute quadrangle map along the east side of Reservation Road (western edge of the project area; Figure 5). The fifth STP was started, but examination of the profile indicated that the area was heavily disturbed. No fill was screened from STP 5.

D. Survey Interpretation and Evaluation

Shovel testing in green spaces indicates that those areas are heavily disturbed and have very low potential for intact cultural resources. The same scenario likely exists below the extensive asphalt parking lot. These areas may have been stripped of topsoil in the early- to mid-twentieth century in preparation of the development of the aforementioned Wilson Dam Reservation Addition Area No. 2. Given the results of this study and corroborating evidence found in Wampler et al. (2016), it appears that the reservation addition was planned but never built.

Older aerial photographs and topographic maps do show structures located in the southeastern corner of the parking lot. These areas are now listed as Solid Waste Management Units that have been excavated to significant depths and then backfilled. Intact archaeological deposits associated with those buildings would obviously not be present.

The absence of NRHP-listed, eligible, potentially eligible or any previously identified archaeological sites, as well as the documented environmental conditions, provide a reliable basis for concluding that the archaeological APE contains no effected historic properties. As a result of these findings, TVA recommends no further archaeological work for the proposed project.

III. Architectural Survey

A. Background Research

TVA carried out a desktop review of the APE, using historic topographic maps, TVA's Integrated Cultural Database, current satellite imagery, and previous survey reports. This review identified four previously-recorded historic structures within 0.5 mi of the project area: the c. 1950 GUBMK Southwest Region Office (Ct00001); the c. 1945 the GUBMK Payroll and Training Center (Ct00002),

the c. 1950 TVA Power Service Building; and the c. 1950 water tower. Ct00001 and Ct00002 were previously determined not eligible for listing in the NRHP due to a lack of historic and architectural significance (AHC 2016-0876); both also appear to be out of direct line of sight to the proposed project (Wampler et al. 2016: 56-70).

The TVA Power Service Building, previously recorded and determined eligible for listing as a contributing building of the Muscle Shoals Historic District, is located approximately 745 ft south of the footprint of the proposed warehouse, within direct line of sight (AHC 2016-0876; Pietak et al. 2002; Thomas et al. 2008; and Wampler et al. 2016).

A c. 1950 water tower and its associated concrete operations building are located approximately 170 ft south of the footprint of the proposed warehouse, within direct line of sight. It was previously determined to be a contributing resource of the NRHP-eligible Muscle Shoals Historic District (AHC 0-0038).

B. Results

TVA staff completed a field visit on July 5, 2018 and confirmed that the TVA Power Service Building and the water tower are the only extant resources within a direct line of sight to the proposed warehouse (see Figure 1).

The c. 1950 Power Service Building serves as the control center of the Muscle Shoals Reservation (MSR) electrical systems as well as the sole center for refurbishing all of TVA's electrical systems (Figures 6-8). The Power Service Building represents the modernistic International style and features an inverted gable roof, exterior steel, concrete, and prefabricated metal panels, and a continuous foundation. The height of the building varies to create two separate building blocks. Continuous glass panels span the exterior elevations and the façade (northwest) elevation, features a continuous band of two-light metal sash windows. Modern one-story, flat roof additions with two-light steel sash windows extend from the southwest and northeast corners of the building. The TVA Power Service Building was determined eligible for listing in the NRHP under Criterion A and C as a contributing building of the NRHP-eligible Muscle Shoals Historic District (Thomas et al. 2008:81-86; Wampler et al. 2016:*ii*) (AHC 2016-0876). TVA finds that the TVA Power Service Building retains integrity for listing and it reflects the national significance of the MSR and represents TVA's role throughout the Tennessee Valley.

The c. 1950 water tower is an approximately 120 ft high steel and reinforced concrete cylindrical tower; a brick operations building with six-light steel hopper windows situated at its base (see Figure 8; Figures 9-10). In 2008, the water tower was recommended eligible for listing in the NRHP as a contributing resource of the NRHP-eligible Muscle Shoals Historic District (Thomas et al. 2008:92-93). TVA finds the water tower and operations building retain integrity to retain their eligibility as part of the Muscle Shoals Historic District.

C. Discussion

The setting near the TVA Power Service Center and water tower is not pristine; approximately 29 additional TVA facilities, buildings, and structures have been constructed adjacent to or in close proximity to the area since 1971 (Figure 11) (Wampler et al. 2016: *ii*). The proposed project will have

an indirect (visual) effect on the district and would alter the existing landscape; however, these changes are not out of character with the property's current industrial setting. Thus, TVA finds that the undertaking will not result in an adverse effect on the NRHP-eligible TVA Power Service Building and water tower.

IV. Findings of Effect

Based on the findings of the archaeological and architectural surveys, TVA finds that the proposed actions will have no adverse effect to historic properties. No further archaeological or architectural work is recommended for the proposed project.

V. References Cited

Pietak, Lynn M., Aaron Deter-Wolf, Ruth Nichols, Jim D'Angelo, Kristin Wilson, and Jeffry L. Holland

2002 Cultural Resources Survey for the Muscle Shoals Reservation, Lauderdale and Colbert Counties, Alabama. Prepared for the Tennessee Valley Authority by TRC, Atlanta, Georgia.

Thomas, Larissa, Emily Tucker, Ellen Jenkins and Jeffrey Holland

2008 Cultural Resources Survey of the Proposed Wilson Hydroelectric Plant Switchyard in Colbert County, Alabama. Prepared for Tennessee Valley Authority by TRC, Norcross, Georgia.

Wampler, Marc, Dawn M. Bradley, Matthew E. Prybylski, and Cailtlin Edge

2016 Phase I Archaeological and Historic Architectural Viewshed Survey for Proposed TVA Service Centers Relocation Project, Muscle Shoals, Colbert County, Alabama. Prepared for Tennessee Valley Authority by Amec Foster Wheeler Environment & Infrastructure Inc., Louisville, Kentucky.



Figure 1. Location of the Archaeological and Architectural APEs, on the Florence, AL USGS 7.5' quadrangle map.



Figure 2. Archaeological APE and building footprint overlaid on acquisition maps for Wilson Dam; fieldwork indicates that these lots were not developed as originally planned.



Figure 3. Location of the Archaeological APE and Shovel Test Pits.



Figure 4. Profile of STP 3. View to the west.



Figure 5. Archaeological APE overlaid on the 1936 USGS 7.5-minute Florence, AL quadrangle map.



Figure 6. Southerly view of the TVA Power Service Building from the project area.



Figure 7. East-southeasterly view of the façade of the TVA Power Service Building.



Figure 8. North-northeasterly view of the project area and water tower from the TVA Power Service Building.



Figuer 9. Southerly view of the brick operations building beneath the water tower.



Figure 10. Northerly view of the water tower and operations building.



Figure 11. Southeasterly overview to existing development from project area.

From:	Hamrick, Elizabeth Burton
To:	"bill_pearson@fws.gov"; "william_lynn@fws.gov"; "shannon_holbrook@fws.gov"
Subject:	RESUBMISSION- Project-specific notification in accordance with TVA Programmatic Consultation for Routine Actions and Federally
Date:	Monday, September 17, 2018 2:51:35 PM
Attachments:	Completed BSPSR CEC 39098 9.17.2018.pdf
	image001.png
	image002.png
	image003.png
	image004.png
	image005.png
	image006.png
	image007.png
	image008.png

Good afternoon,

A few edits have been made to a Bat Strategy Form previously submitted to you by Logan Barber on September 11, 2018. Please see attached revised TVA Bat Strategy Form for the project listed below. Please note- no changes have been made to acreages removed or timing of tree removal. Additional conservation measures were added to which the project must adhere.

Project: CEC 39098 – Project # 437100. New construction in Colbert County, Alabama. Project includes clearing, grubbing, grading, erosion control, laydown area, foundation installation, and temporary office trailers. 2 acres of suitable summer roosting habitat are scheduled to be cleared. This clearing will occur in winter.

Thanks!

Liz Hamrick

Terrestrial Zoologist Biological Compliance

400 W Summit Hill Dr. WT 11C-K Knoxville, TN 37902

865-632-4011 (w) ecburton@tva.gov



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Project Screening Form - TVA Bat Strategy (05/08/2018)

This form is to assist in determining alignment of proposed projects and any required measures to comply with TVA's ESA Section 7 programmatic consultation for routine actions and federally-listed bats¹

Project Name:		Date:		
Contact(s):	CEC#:	RLR#:	_ Project ID:	

Project Location (City, County, State):_____

Project Description: _____

STEP 1) Select Appropriate TVA Action (or check here \Box if none of the Actions below are applicable):

	Manage Biological Resources for Biodiversity and Public Use		Maintain Existing Electric Transmission
1	on TVA Reservoir Lands	6	Assets
			Convey Property associated with Electric
2	Protect Cultural Resources on TVA-Retained Land	7	Transmission
			Expand or Construct New Electric
3	Manage Land Use and Disposal of TVA-Retained Land	8	Transmission Assets
4	Manage Permitting under Section 26a of the TVA Act	9	Promote Economic Development
5	Operate, Maintain, Retire, Expand, Construct Power Plants	10	Promote Mid-Scale Solar Generation

STEP 2) Select <u>all</u> activities from **Tables 1 and 2** (<u>Column 1 only</u>) included in proposed project. If you have an activity that is not listed below, describe here): ______

Table 1. Activities (CHECK ALL THAT APPLY) with No Effect on Federally Listed Bats. If none, check here:

#	ACTIVITY	#	ACTIVITY
□ 1	Loans and/or grant awards	12	Sufferance agreement
□ 2	Purchase of property	13	Engineering or environmental planning or studies
□ 3	Purchase of equipment for industrial facilities	14	Harbor limits
□ 4	Environmental education	19	Site-specific enhancements in streams and reservoirs for aquatic animals
□ 5	Transfer of ROW easement or ROW equipment	20	Nesting platforms
□ 6	Property and/or equipment transfer	41	Minor water-based structures
- 7	Easement on TVA property	42	Internal renovation or internal expansion of existing facility
□ 8	Sale of TVA property	43	Replacement or removal of TL poles, or cutting of poles to 4-6 ft above ground
. 9	Lease of TVA property	44	Conductor and OHGW installation and replacement
□ 10	Deed modification of TVA rights or TVA property	49	Non-navigable houseboats
□ 11	Abandonment of TVA retained rights		

Table 2. Activities (CHECK ALL THAT APPLY) and Associated Conservation Measures. If none, check here:

	#		CONSERVATION MEASURES	TZ SME Review Needed
Γ		Windshield or ground surveys for	□ a. NV1	
	□ 1	15 archaeological resources	□ <mark>b</mark> . HP2	□ <mark>b</mark> . HP1
ſ			□ a. NV1	□ a NV3, NV4 / □ a1. NV2
			□ f. SSPC1, SSPC2, SSPC3	
	□ 1	16 Drilling	🗆 g. L1, L2	
ſ	Mechanical vegetation removal;			
		does not include removal of trees or	[.] □ a. NV1	
	□ 1	17 tree branches \geq 3" in diameter.	□ f. SSPC1, SSPC2, SSPC3, SSPC5	□ <mark>f</mark> . SSPC4, SSPC7
ſ			□ a. NV1	
	□ 1	18 Erosion control – minor	□ f. SPCC1, SSPC2, SSPC3, SSPC5	None
Γ	□ 2	21 Herbicide use	d. SSPC1, SSPC2, SSPC3, SSPC5	□ d. SSPC6, SSPC7
Γ			□ <mark>a.</mark> NV1	
	□ 2	22 Grubbing	□ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4
ſ	. 2	23 Prescribed burns, burn piles, or	□ c. SHF1, SHF4, SHF5	□ c. SHF2, SHF3, SHF6, SHF7,

# A		ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
brush piles		brush piles		SHF8, SHF9
			□ a NV1	
	24	Tree planting	□ f. SSCP1, SSPC2, SSPC3, SSPC5	None
		Maintenance, improvement or	🗆 <mark>a.</mark> NV1	□ a1. NV2
		construction of pedestrian or	□ f. SSPC1, SSPC2, SSPC3,	
	25	vehicular access corridors	SSPC5	
				□ a NV3, NV4 / □ a1. NV2
		Maintenance or construction of	$\square D. \Pi Z$ $\square f SSPC1 SSPC2 SSPC3 SSPC5$	
	26	access control measures	$\square a 1 2$	
		Restoration of sites following	a. NV1	
	27	human use and abuse	□ f. SSPC1, SSPC2, SSPC3	□ f. SSPC7
		Removal of debris (e.g., dump		
		sites, hazardous material,	□ <mark>a</mark> . NV1	
	28	unauthorized structures)	□ f. SSPC1, SSPC2, SSPC3	□ f. SSPC7
_	20	Acquisition and use of fill/borrow		
	29	material	□ 1. 35PC1, 35PC2, 35PC3	□ I. 55PC7
	30	harbor areas	$\square f$ SSPC2 SSPC3 SSPC5	None
			□ a. NV1	
	31	Stream/wetland crossings	□ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC7
		<u></u>	□ a. NV1	
	32	Clean-up following storm damage	□ f. SSPC1, SSPC2, SSPC3	□ f. SSPC4, SSPC7
			□ a. NV1	🗆 d. TR1, TR2, TR3, TR4,
		Removal of hazardous trees or tree	□ d. TR7, TR8	TR5, TR6, TR9,
	33	branches	□ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4, SSPC7
		includes trees or tree branches	\square a . NV1	0. IR1, IR2, IR3, IR4,
	34	three inches or greater in diameter	$\square \mathbf{f}$ SSPC1 SSPC2 SSPC3 SSPC5	$\square f$ SSPC4 SSPC7
	54			
	35	Stabilization (major erosion control)	□ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4, SSPC7
			□ a. NV1	
			□ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4, SSPC7
	36	Grading	🗆 g. L1, L2	
			□ a. NV1	□ a1. NV2
	27		□ f. SSPC1, SSPC2, SSPC3	□ f. SSPC7
	31	Installation of soil improvements		
		Drainage installations (including for	$\square f SSPC1 SSPC2 SSPC3$	□ f SSPC7
	38	ponds)	a, L1, L2	
			□ <mark>a.</mark> NV1	
			□ f. SSPC1, SSPC2, SSPC3,	
	39	Berm development	🗆 g. L1, L2	None
		Closed loop heat exchangers (heat	£ 00005	Nega
	40	pumps) Stream monitoring, and in mont	<u> 1. SSPU5</u>	None
_	45	Suream monitoring equipment-		None
		Floating boat slips within approved		
	46	harbor limits	□ f. SSPC5	None
	47	Conduit installation	□ a. NV1	□ a1. NV2
			□ <mark>a.</mark> NV1	
			□ f. SSPC1, SSPC2, SSPC3,	
	48	Laydown areas	□ g. L1, L2	None
	50	Minor land-based structures	1. 33761, 33762, 33763, 33765 a 1 2	None
	50	ואוויטי ומווע-שמשכע שוועטנעופש	u g. c., cz	
	51	Signage installation	□ f. SSPC1, SSPC2, SSPC3, SSPC5	None
	<u> </u>		□ a. NV1	□ a1. NV2
			□ f. SSPC2, SSPC3,SSPC5	
	52	Floating buildings	🗆 g. L1, L2	
	53	Mooring buoys or posts	□ a. NV1	

	#	ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
			□ f. SSPC2, SSPC3, SSPC5	None
		Maintenance of water control		
		structures (dewatering units,	□ <mark>a</mark> . NV1	□ f. SSPC6, SSPC7
	54	spillways, levees)	□ f. SSPC2, SSPC3, SSPC5	
			□ <mark>a.</mark> NV1	
	55	Solar panels	□ f. SSPC2, SSPC3, SSPC5	□ <mark>f</mark> . SSPC7
			□ a. NV1	
	56	Culverts	□ f. SSPC1, SSPC3, SSPC5	None
			□ a. NV1	
	57	Water intake - non-industrial	□ f. SSPC3, SSPC5	None
			□ a. NV1	
	58	Wastewater outfalls	□ f. SSPC2, SSPC3, SSPC5	None
_	50	Marina fueling facilitian	\Box T. SSPC2, SSPC3,	Nene
	23		55PC5 [] g. L I, L2	None
		Commercial water use facilities	$\Box f SSPC2 SSPC5$	
	60	(e a marinas)	$\Box \alpha 1 1 1 2$	None
	00	(c.g., mannas)	a NV/1	
	61	Sentic fields	□ f SSPC1 SSPC2 SSPC3 SSPC5	None
	•••		a NV1	$\square a NV3 NV4 / \square a1 NV2$
			□ f. SSPC1. SSPC2. SSPC3.	
	62	Blasting	□ q. L1, L2	
			□ a. NV1	□ a1. NV2
	63	Foundation installation	□ f. SSPC1, SSPC2, SSPC3	
		Installation of steel structure,	🗆 a. NV1	□ a1. NV2
	64	overhead bus, equipment, etc.	□ g. SSPC1, SSPC2, SSPC3	
		Pole and/or tower installation	□ <mark>a</mark> . NV1	□ a1. NV2
	65	and/or extension	□ f. SSPC1, SSPC2, SSPC3	
			□ <mark>a</mark> . NV1	
		Private, residential docks, piers,	□ f. SPCC5	
	66	boathouses	🗆 g. L1, L2	None
	~ 7		□ f. SSPC1, SSPC2, SSPC3, SSPC5	
	67	Siting of temporary office trailers	□ g. L1, L2	None
_	60	Financing for speculative building		Nene
	00			None
			$\Box f SSDC1 SSDC3 SSDC5$	
	69	Renovation of existing structures	$\square n 1 2$	$\Box C. ANT, ANZ, AN4, AN3$
			a NV/1	\Box a1 NV2
	70	Lock maintenance and construction	□ f. SSPC2, SSPC3, SSPC5	
			□ a. NV1	□ a1. NV2
	71	Concrete dam modification	□ f. SSPC2. SSPC3	
			□ a. NV1	
			□ f. SSPC5	
	72	Ferry landings/service operations	🗆 g. L1, L2	None
			□ <mark>a</mark> . NV1	□ a1. NV2
	73	Boat launching ramps	□ f. SSPC2, SSPC5	
			□ a. NV1	
	74	Recreational vehicle campsites	🗆 g. SPCC5	None
			□ a. NV1	
			t. SPCC5	
	75	Utility lines/light poles	□ g. L1, L2	None
				Nana
	16			
	1	Construction or expansion of land		
	77	based buildings	11. 33502, 33703, 33703	
	11	มลออน มนแนแญร	u y. LI, L2	□ 21 NV/2
1	1		$\Box f SSPC2 SSPC5$	
	78	Wastewater treatment plants	[a] 1 12	
	70			
	19	Swimming pools and associated		

	#	ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
		equipment	□ f. SSPC5	
			🗆 g. L1, L2	None
			□ <mark>a</mark> . NV1	□ a1. NV2
	80	Barge fleeting areas	I. SSPC2, SSPC3, SSPC5	
			□ <mark>a</mark> . NV1	
	81	Water intakes - Industrial	I. SSPC2, SSPC3, SSPC5	None
			□ <mark>a</mark> . NV1	□ a1. NV2
	82	Construction of dam/weirs/ Levees	In f. SPCC2, SPCC3, SPCC5	
		Submarine pipeline, directional	□ a. NV1	□ a1. NV2
	83	boring operations	I f. SSPC2, SSPC3, SSPC5	
		On-site/off-site public utility		
		relocation or construction or	□ <mark>a</mark> . NV1	
	84	extension	I. SSPC1, SSPC3, SSPC5	None
			□ <mark>a</mark> . NV1	
	85	Playground equipment - land-based	f. SSPC5	None
			□ <mark>a</mark> . NV1	□ a1. NV2
			□ f. SSPC2, SSPC3	
	86	Landfill construction	□ g. L1, L2	
			□ a. NNV1	
	87	Aboveground storage tanks	□ f. SSPC2, SSPC3, SSPC5	None
	88	Underground storage tanks (USTs)	□ g. SSPC2, SSPC3, SSPC5	None
	89	Structure demolition	□ f. SSPC1, SSPC2, SSPC3	□ e. AR1, AR2, AR4, AR5
			□ a. NV1	
	90	Pond closure	□ f. SSPC2, SSPC3	None
	~		□ a. NV1	
	91	Bridge replacement	□ f. SSPC3, SSPC5	□ e. AR1, AR2, AR3, AR5,
	~~	Return of remains to former burial		
	92	SITES		□ <mark>0</mark> . HP1
	00	Standard lisansa		None
	93			None
	94			None
	0.5	Descretion lissnes		Nega
	95	Recreation license		None
1	0			Nega
	90	Land use permit	0 I. 33PU3	None

STEP 4) Check <u>ALL</u> relevant characteristics below. If **none** apply, **STOP HERE** and check . <u>No Bat Strategy</u> <u>Conservation Measures required</u>. Include form in environmental documentation <u>and</u> send to <u>batstrategy@tva.gov</u>

- a. Project may occur outside, involves human presence, or use of equipment that generates noise or vibration (e.g., drilling, blasting, loud machinery).
 - \Box a1. Project involves continuous noise (i.e., \geq 24 hrs) that is >75 decibels measured on A scale (e.g., loud machinery).
- □ b. Project may involve human entry into/survey of a potential bat roost (cave, bridge, other structure).
- c. Project may involve fire (e.g., prescribed fire, burn piles) or preparation of fire breaks within 0.25 mi of trees, caves, or water sources. If prescribed burn, estimated acreage: _____

 d. Project may involve tree removal. Tree removal may need to occur outside of winter. Tree removal will occur only in winter. 	YES □ NO YES □ NO
Estimated number of trees or acres to be removed: □ acres □ trees If warranted, project has flexibility for bat surveys (May 15-Aug 15):	MAYBE - YES - NO

- □ e. Project may involve alteration or removal of bridges or other human structures.
- In f. Project may involve land use activities involving ground disturbance or use of chemicals or fuels near water sources, wetlands, sinkholes, caves, or exposed limestone/karst.
- □ g. Project may involve use of artifical lighting at night.

<u>Terrestrial Zoologist SME Verification (Steps 6-11 will be completed by a terrestrial zoologist if warranted)</u>: STEP 6) Project is within range of: Gray bat VA Big-eared bat Indiana bat Northern long-eared bat

STEP 7a) Project includes the following:

- Removal/burning of suitable trees within 0.5 mile (0.8 km) of P1-P2 Indiana bat hibernacula or 0.25 mile (0.4 km) of P3-P4 Indiana bat hibernacula or any northern long-eared bat hibernacula.
- Removal/burning of suitable trees within 10 miles of documented Indiana bat hibernacula or within 5 miles of northern long-eared bat hibernacula.
- Removal/burning of suitable trees greater than 10 miles from documented Indiana bat hibernacula or greater than 5 miles from documented northern long-eared bat hibernacula.
- Removal/burning of trees within 150 feet of a documented Indiana bat or northern long-eared bat maternity roost tree.
- Removal/burning of suitable trees within 2.5 miles of Indiana bat roost trees or within 5 miles of Indiana bat capture sites.
- Removal/burning of suitable trees greater than 2.5 miles from Indiana bat roost trees or greater than 5 miles from Indiana bat capture sites.
- □ Removal/burning of documented Indiana bat or northern long-eared bat roost tree, if still suitable.

STEP 7b) Amount of SUITABLE tree/acreage removal or burned (may be different than total amount of

removal): _____ acres trees

STEP 8) Select anticipated date range of burning/tree removal in table below:

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	Oct 15 - Nov 14	Nov 15 - Mar 31	□ Apr 1 - May 31, Aug 1- Oct 14	🗆 Jun 1 - Jul 31
VA	Sep 16 - Nov 15	Nov 16 - Apr 14	□ Apr 15 - Sep 15	🗆 Jun 1 - Jul 31
AL	Oct 15 - Nov 14	Nov 15 - Mar 15	□ Mar 16 - May 31, Aug 1 - Oct 14	🗆 Jun 1 - Jul 31
NC	Oct 15 - Nov 14	Nov 15 - Apr 15	□ Apr 16 - May 31, Aug 1 - Oct 14	🗆 Jun 1 - Jul 31
MS	□ Oct 1 - Nov 14	□ Nov 15 - Apr 14	□ Apr 15 - Sep 30	🗆 Jun 1 - Jul 31

STEP 9) Presence/absence surveys (visual, mist net, acoustic) were/will be conducted:
VES
NO
TBD

STEP 10) Result of presence/absence surveys (if conducted), on ______ (date):
NEGATIVE
POSITIVE
N/A NOTES: _____

STEP 11) Conservation measures have been verified (and modified, if necessary) in Table 2. *NOTES*:

Bat Strategy Compliance Verification (Steps 12-15 will be completed by SME/Bat Strategy Support staff):

STEP 12) Project \square WILL \square WILL NOT require use of Incidental Take in the amount of _____ \square acres or \square trees, proposed to be used during the \square WINTER \square VOLANT \square NON-VOLANT bat season (or \square N/A).

STEP 13) Available Incidental Take as of _____ for _____

TVA Action	Total 20-year	Winter	Volant Season	Non-Volant Season
	acreage	Burning/Removal	Burning/Removal	Burning/Removal

STEP 14) Amount contributed to TVA's Bat Conservation Fund upon activity completion: ______ or D N/A

STEP 15) Project Effects Determinations: Gray Bat: NE NLAA N/A; Virginia Big-eared Bat: NE NLAA N/A Northern Long-eared Bat: NE NLAA LAA N/A; Indiana Bat: NE NLAA LAA N/A

NOTES:___

(Action):

TVA's ESA Section 7 Bat Strategy Conservation Measures Required for:

STEP 16) Based on completion of Step 5, select the appropriate Conservation Measures listed in the table below (this will be completed/verified by a Terrestrial Zoologist if a Terrestrial Zoologist review is required) and review the following bullets. Save this form in project environmental documentation AND send a copy of form to batstrategy@tva.gov. Submission of this form is an indication that the Project Lead _______ (name) is (or will be made) aware of the requirements below.

- Implementation of conservation measures identified below is required to comply with TVA's programmatic Endangered Species Act bat consultation.
- Confirmation of completion (e.g., report from contractor, time stamped photos pre and post completion) for Conservation Measures below with an * (as well as any additional confirmation noted here by Terrestrial Zoologist:______) will be provided to TVA's Bat Strategy Compliance Officer (<u>batstrategy@tva.gov</u>) following completion of activit (ies).
- TVA may conduct post-project monitoring to determine if conservation measures were effective in minimizing or avoiding impacts to federally listed bats.

STEP 17) For projects that require use of Take and/or contribution to TVA's Bat Conservation Fund, please acknowledge the following statement:

□ Project Lead/Contact acknowledges that proposed project will result in use of _____ □ acres/□ trees in Incidental Take and will require ______ contribution to TVA's Conservation Fund upon completion of activity.

Conservation	
Measure Acronym	Conservation Measure Description
NV1	Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
NV2	Drilling, blasting, or any other activity that involves continuous noise (i.e., longer than 24 hours) disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) within a 0.5 mile radius of documented winter and/or summer roosts (caves, trees, unconventional roosts) will be conducted when bats are absent from roost sites.
NV3	Drilling or blasting within a 0.5 mile radius of documented cave (or unconventional) roosts will be conducted in a manner that will not compromise the structural integrity or alter the karst hydrology of the roost site.
NV4	Drilling or blasting within 0.5 miles of a documented roost site (cave, tree, unconventional roost) that needs to occur when bats are present will first involve development of project-specific avoidance or minimization measures in coordination with the USFWS.
HP1	Site-specific cases in which potential impact of human presence is heightened (e.g., conducting environmental or cultural surveys within a roost site) will be closely coordinated with staff bat biologists to avoid or minimize impacts below any potential adverse effect. Any take from these activities would be covered by TVA's Section 10 permit.
HP2	Entry into roosts known to be occupied by federally listed bats will be communicated to the USFWS when impacts to bats may occur if not otherwise communicated (i.e., via annual monitoring reports per TVA's Section 10 permit). Any take from these activities would be covered by TVA's section 10 permit.
SHF1	Fire breaks will be used to define and limit burn scope.
SHF2	Site-specific conditions (e.g., acres burned, transport wind speed, mixing heights) will be considered to ensure smoke is limited and adequately dispersed away from caves so that smoke does not enter cave or cave-like structures.
SHF3	Acreage will be divided into smaller units to keep amount of smoke at any one

	time or location to a minimum and reduce risk for smoke to enter caves.
SHF4	If burns need to be conducted during April and May, when there is some
	potential for bats to present on the landscape and more likely to enter torpor due
	to colder temperatures, burns will only be conducted if the air temperature is 55°
	or greater and preferably 60° or greater
SHE5	Fire breaks will be plowed immediately prior to burning will be plowed as
	shallow as possible, and will be kept to minimum to minimize sediment
SHEE	Tractor-constructed fire lines will be established greater than 200 feet from cave
51110	optrances. Existing logging roads and skid trails will be used where feasible to
	minimize around disturbance and generation of loose sodiment
	Burning will only occur if site specific conditions (o.g. acros burned, transport
	Burning will only occur if site specific conditions (e.g. acres burned, transport
	dispersed every from eavies or eavie like structures. This explice to preseriled
	dispersed away from caves of cave-like structures. This applies to prescribed
	burns and burn piles of woody vegetation.
SHF8	Brush piles will be burned a minimum of 0.25 mile from documented, known, or
	obvious caves of cave entrances and otherwise in the center of newly
	established ROW when proximity to caves on private land is unknown.
SHF9	A 0.25 mile buffer of undisturbed forest will be maintained around documented or
	known gray bat maternity and hibernation colony sites, documented or known
	Virginia big-eared bat maternity, bachelor, or winter colony sites, Indiana bat
	hibernation sites, and northern long-eared bat hibernation sites. Prohibited
	activities within this buffer include cutting of overstory vegetation, construction of
	roads, trails or wildlife openings, and prescribed burning. Exceptions may be
	made for maintenance of existing roads and existing ROW, or where it is
	determined that the activity is compatible with species conservation and recovery
	(e.g., removal of invasive species).
TR1*	Removal of potentially suitable summer roosting habitat during time of potential
	occupancy has been quantified and minimized programmatically. TVA will track
	and document alignment of activities that include tree removal (i.e., hazard trees,
	mechanical vegetation removal) with the programmatic quantitative cumulative
	estimate of seasonal removal of potential summer roost trees for Indiana bat and
	northern long-eared bat. Project will therefore communicate completion of tree
	removal to appropriate TVA staff.
TR2	Removal of suitable summer roosting habitat within 0.5 mile of Priority 1/Priority
	2 Indiana bat hibernacula, or 0.25 mile of Priority 3/Priority 4 Indiana bat
	hibernacula or any northern long-eared bat hibernacula will be prohibited,
	regardless of season, with very few exceptions (e.g., vegetation maintenance of
	TL ROW immediately adjacent to a known cave).
TR3*	Removal of suitable summer roosting habitat within documented bat habitat (i.e.,
	within 10 miles of documented Indiana bat hibernacula, within five miles of
	documented northern long-eared bat hibernacula, within 2.5 miles of
	documented Indiana bat summer roost trees, within five miles of Indiana bat
	capture sites, within one mile of documented northern long-eared bat summer
	roost trees, within three miles of northern long-eared bat capture sites) will be
	tracked, documented, and included in annual reporting. Project will therefore
	communicate completion of tree removal to appropriate TVA staff.
TR4*	Removal of suitable summer roosting habitat within potential habitat for
	Indiana bat or northern long-eared bat will be tracked, documented, and
	included in annual reporting. Project will therefore communicate completion of
	tree removal to appropriate TVA staff.
TR5	Removal of any trees within 150 feet of a documented Indiana bat or northern
	long-eared bat maternity summer roost tree during non-winter season, range-
	wide pup season or swarming season (if site is within known swarming habitat),
	will first require a site-specific review and assessment. If pups are present in
	trees to be removed (determined either by mist netting and assessment of adult
	females, or by visual assessment of trees following evening emergence counts),

	TVA will coordinate with the USFWS to determine how to minimize impacts to
	pups to the extent possible. May include establishment of artificial roosts before
	removal of roost tree(s).
TR6	Removal of a documented Indiana bat or northern long-eared bat roost tree that
	is still suitable and that needs to occur during non-winter season, range-wide
	pup season, or swarming season (if site is within known swarming habitat) will
	first require a site-specific review and assessment. If nuns are present in trees to
	he removed (determined either by mist netting and assessment of adult females
	or by visual assessment of trees following evening emergence counte). TVA will
	coordinate with LISEWS to determine how to minimize impacts to pupe to the
	extent passible. This may include actablishment of artificial reacts before
	removal of roost troo(c)
TP7	Trop removal within 100 foot of existing transmission POWs will be limited to
	hazard trees. On or adjacent to TLs, a bazard tree is a tree that is tall apough to
	fall within an unsafe distance of TLs, a fidzard free is a free fild is fall enough to
	and/or are also doed discance of TLS under maximum say and blowout conditions
	and/or are also dedu, diseased, dying, and/or reaning. Hazard free removal
	of operation and maintenance of a TL or 2) have the ability in the future to
	bioperation and maintenance of a TL of 2) have the ability in the future to
TDO	Requests for removal of bezord trees on or adiagont to TVA recorneir land will
IRO	he inspected by staff knowledgephie in identifying bezord trees per international
	Seciety of Arboriaulture and TVA's shacklist for bazard trace. Approval will be
	Society of Arbonculture and TVA's checklist for hazard trees. Approval will be
 TDO	If removal of cuitable cummer reacting babitat occurs when bats are present on
1 4 9	the landesane, a funding contribution (based on amount of babitat removed)
	the landscape, a funding contribution (based on amount of habitat removed)
	towards future conservation and recovery enoris for receiving listed bats would be corried out. Broken consider concerned bat processes (abconce our your
	mist patting or amargance counted that allow for positive detections without
	(mist netting of emergence counts) that allow for positive detections without resulting in increased constraints in cost and project schedule. This will enable
	TVA to contribute to increased knowledge of bot processors on the landscope
	while continuing to corry out TVA's broad mission and reaponsibilities
	Projects that involve structural modification or domolition of buildings, bridges
AIT	and notentially suitable box sulverts, will require assessment to determine if
	structure has characteristics that make it a potentially suitable unconventional
	bat roost If so a survey to determine if bats may be present will be conducted
	Structural assessment will include:
	 Visual check that includes an exhaustive internal/external inspection of
	building to look for evidence of bats (e.g. bat droppings roost
	entrance/evit holes): this can be done at any time of year, preferably
	when bats are active
	Where accessible and health and safety considerations allow a survey of
	roof space for evidence of bats (e.g. droppings scratch marks staining
	sightings) noting relevant characteristics of internal features that provide
	signifigs), found relevant characteristics of internal relatives that provide
	may include: gaps between tiles and reef lining, access points via eaves
	appendix to a provide a second martice is international and the and
	gaps between timbers of around monise joints, gaps around top and
	broasts, and clean ridge beams
	Diedsis, and clean nuge beams.
	• Features with high-medium likelihood of harboring bats but cannot be
	checked visually include soffits, cavity walls, space between roof covering
	and root lining.
	 Applies to box culverts that are at least 5 feet (1.5 meters) tall and with
	one or more of the following characteristics. Suitable culverts for bat day
	roosts have the following characteristics:
	 Location in relatively warm areas

		 Between 5-10 feet (1.5-3 meters) tall and 300 ft (100 m) or more long
		 Openings protected from high winds
		 Not susceptible to flooding
		Inner areas relatively dark with roughened walls or ceilings
		 Crevices imperfections or swallow nests
		Bridge survey protocols will be adapted from the Programmatic Biological
		Opinion for the Federal Highway Administration (Appendix D of USFWS 2016c, which includes a Bridge Structure Assessment Guidance and a Bridge Structure Assessment Form).
		 Bat surveys usually are NOT needed in the following circumstances: Domestic garages /sheds with no enclosed roof space (with no ceiling)
		 Modern flat-roofed buildings
		Metal framed and roofed buildings
		 Buildings where roof space is regularly used (e.g., attic space converted to living space, living space open to rafters) or where all roof space is lit from skylights or windows. Large/tall roof spaces may be dark enough at apex to provide roost space.
	AR2	Additional bat P/A surveys (e.g., emergence counts) conducted if warranted (i.e., when AR1 indicates that bats may be present).
	AR3	Bridge survey protocols will be implemented, either by permittee (e.g., state DOT biologists) or qualified personnel. If a bridge is determined to be in use as an unconventional roost, subsequent protocols will be implemented.
	AR4	Removal of buildings with suitable roost characteristics within six miles of known
		or presumed occupied roosts for Virginia big-eared bat would occur between
		Nov 16 and Mar 31. Buildings may be removed other times of the year once a
		bat biologist evaluates a buildings' potential to serve as roosting habitat and
		determines that this species is not present and/or is not using structure(s).
		out or recommend (i.e., to applicants) seasonal modification or removal, TVA will carry out or recommend (i.e., to applicants) seasonal modification or removal. Risk to human safety, however, should take priority. For project-specific cases in which project is unable to accommodate seasonal modification or removal, and federally listed bat species are present, TVA will carry out or recommend consultation with the USFWS to determine the best approach in the context of the project-specific circumstance. This may include establishment of artificial roosts before demolition of structures with bats present.
-	SSPC1	Transmission actions and activities will continue to Implement A Guide for
		Environmental Protection and Best Management Practices for Tennessee Valley
		Authority Construction and Maintenance Activities. This focuses on control of
		sediment and pollutants, including herbicides. Following are key measures:
		 BMPs to minimize erosion and prevent/control water pollution in
		accordance with state-specific construction storm water permits. BMPS
		are designed to keep soil in place and aid in reducing risk of other
		pollutants reaching surface waters, wetlands and ground water. BMPs
		will undertake the following principles:
		 Plan clearing, grading, and construction to minimize area and
		duration of soil exposure.
		 Maintain existing vegetation wherever and whenever possible.
		 Minimize disturbance of natural contours and drains.
		 As much as practicable, operate on drv soils when they are least
		susceptible to structural damage and erosion.
		 Limit vehicular and equipment traffic in disturbed areas.
		 Keep equipment paths dispersed or designate single traffic flow

	paths with appropriate road BMPs to manage runoff.
	 Divert runoff away from disturbed areas.
	 Provide for dispersal of surface flow that carries sediment into
	undisturbed surface zones with high infiltration capacity and
	around cover conditions.
	 Prepare drainage ways and outlets to handle
	concentrated/increased runoff
	 Minimize length and steepness of slopes. Interrupt long slopes
	frequently
	Tequentity.
	 Reep runoil velocilles low and/or check llows.
	 Trap sediment on-site.
	 Inspect/maintain control measures regularly and after significant rain.
	 Re-vegetate and mulch disturbed areas as soon as practical
	 Application of herbicide is in compliance with LISEPA state water quality.
	standards, and state permits. Areas in which covered species are known
	to occur on existing transmission line POW are depicted on referenced
	condicable encodebasts and include guidelines to follow for impact
	applicable spreadsheets and include guidelines to follow for impact
	minimization or avoidance. During pre-job briefings, the ROW Forester
	will review location of resources with contractors and provide guidelines
	and expectations from TVA's BMP Manual (Appendix O). Herbicides
	labeled for aquatic use are utilized in and around wetlands, streams, and
	SMZs. Unless specifically labeled for aquatic use, measures are taken to
	keep herbicides from reaching streams whether by direct application or
	through runoff or flooding by surface water. Hand application of certain
	herbicides labeled for use within SMZs is used only selectively.
	 Specific guidelines regarding sensitive resources and buffer zones:
	 Extra precaution (wider buffers) within SMZs is taken to protect
	stream banks and water quality for streams, springs, sinkholes,
	and surrounding habitat.
	 BMPs are implemented to protect and enhance wetlands. Select
	use of equipment and seasonal clearing is conducted when
	needed for rare plants; construction activities are restricted in
	areas with identified rare plants.
	 Standard requirements exist to avoid adverse impacts to caves,
	protected animals, and unique and important habitat (e.g.,
	protective buffers around caves, restricted herbicide use.
	seasonal clearing of suitable habitat).
 SSPC2	Operations involving chemical/fuel storage or resupply and vehicle servicing will
	be handled outside of riparian zones (streamside management zones) in a
	manner to prevent these items from reaching a watercourse. Earthen berms or
	other effective means are installed to protect stream channel from direct surface
	runoff. Servicing will be done with care to avoid leakage, spillage, and
	subsequent stream, wetland, or ground water contamination. Oil waste, filters,
	other litter will be collected and disposed of properly. Equipment servicing and
	chemical/luei storage will be ilmited to locations greater than 300-It from
	karst features
 SSPC3	Power Plant actions and activities will continue to implement standard
	environmental practices. These include:
	 Best Management Practices (BMPs) in accordance with regulations:

		 Ensure proper disposal of waste, ex: used rags, used oil, empty
		containers, general trash, dependent on plant policy
		 Maintain every site with well-equipped spill response kits, included
		in some heavy equipment
		 Conduct Quarterly Internal Environmental Field Assessments at
		each sight
		 Every project must have an approved work package that contains
		an environmental checklist that is approved by sight
		Environmental Health & Safety consultant.
		 When refueling, vehicle is positioned as close to pump as
		possible to prevent drips, and overfilling of tank. Hose and nozzle
		are held in a vertical position to prevent spillage
		 Construction Site Protection Methods
		 Sediment basin for runoff - used to trap sediments and
		temporarily detain runoff on larger construction sites
		 Storm drain protection device
		 Check dam to help slow down silt flow
		 Silt fencing to reduce sediment movement
		 Storm Water Pollution Prevention (SWPP) Pollution Control Strategies
		 Minimize storm water contact with disturbed soils at the
		construction site
		 Protect disturbed soil areas from erosion
		 Minimize sediment in storm water before discharge
		 Prevent storm water contact with other pollutants
		 Construction sites also may be required to have a storm water
		permit, depending on size of land disturbance (>1 acre)
		 Every site has a Spill Prevention and Control Countermeasures (SPCC)
		Plan and requires training. Several hundred pieces of equipment often
		managed at the same time on power generation properties. Goal is to
		minimize fuel and chemical use
SSP	PC4	Woody vegetation burn piles associated with transmission construction will be
		placed in the center of newly established ROWs to minimize wash into any
		nearby undocumented caves that might be on adjacent private property and thus
		outside the scope of field survey for confirmation. Brush piles will be burned a
		minimum of 0.25 miles from documented caves and otherwise in the center of
	005	newly established ROW when proximity to caves on private land is unknown.
335	-05	development projects or land use projects include standards and conditions
		that include standard BMPs for sediment and contaminants as well as measures
		to avoid or minimize impacts to sensitive species or other resources consistent
		with applicable laws and Executive Orders
SSP	PC6	Herbicide use will be avoided within 200 ft of portals associated with caves, cave
		collapse areas, mines and sinkholes that are capable of supporting cave-
		associated species. Herbicides are not applied to surface water or wetlands
		unless specifically labeled for aquatic use. Filter and buffer strips will conform at
		least to federal and state regulations and any label requirements.
SSP	PC7	Clearing of vegetation within a 200-ft radius of documented caves will be limited
		to that conducted by hand or small machinery clearing only (e.g., chainsaws,
		bush-hog, mowers). This will protect potential recharge areas of cave streams
		and other karst features that are connected hydrologically to caves.
L1		Direct temporary lighting away from suitable habitat during the active season.
L2		Evaluate the use of outdoor lighting during the active season and seek to
		minimize light pollution when installing new or replacing existing permanent
		lights by angling lights downward or via other light minimization measures (e.g.,
		aimming, airected lighting, motion-sensitive lighting).

¹Bats addressed in consultation (02/2018), which includes gray bat (listed in 1976), Indiana bat (listed in 1967), northern long-eared bat (listed in 2015), and Virginia big-eared bat (listed in 1979).