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DISPOSAL OF FEE OWNERSHIP OF YELLOW CREEK
INDUSTRIAL PARK PROPERTIES
FINAL ENVIRONMENTAL ASSESSMENT
Tishomingo County, Mississippi

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Symbols, Acronyms, and Abbreviations

dba	A-weighted Decibel
APE	Area of Potential Effects
CWA	Clean Water Act
DnL	Day-Night Average Sound Level
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
ft	feet
MDA	Mississippi Development Authority
MDEQ	Mississippi Department of Environmental Quality
msl	Mean Sea Level
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
SR	State route
SWPPP	Storm Water Pollution Prevention Plan
TRVWMD	Tombigbee River Valley Water Management District
TVA	Tennessee Valley Authority
TVARAM	TVA Rapid Assessment Method
USACE	U.S. Army Corp of Engineers
USFWS	U.S. Fish and Wildlife Service
YCP	Yellow Creek Port
YCPA	Yellow Creek State Inland Port Authority

CHAPTER 1 – PURPOSE AND NEED FOR ACTION

In 1971, the Tennessee Valley Authority (TVA) partnered with the Mississippi Agricultural and Industrial Development Board [now the Mississippi Development Authority (MDA)], Tombigbee River Valley Water Management District (TRVWMD), and the Yellow Creek State Inland Port Authority (YCPA) to plan and construct a river terminal, railroad, and industrial sites, called the Port Project, on Pickwick Reservoir in Tishomingo County, Mississippi in order to facilitate economic development under contract TV-34832A, as supplemented. In 1984, a new contract, TV-62000A (hereinafter referred to as the Contract), was executed between the original parties. The Contract superseded TV-34832A and provided for additional appropriated funding to ensure long term success of the Port Project.

TVA and all signatory parties desire resolution and changes to the Contract. The parties have formally proposed modifications to the agreement, which would allow for financial settlements specific to their investments, release from liabilities, and termination of the Contract. TVA agrees that the Contract has successfully fulfilled its intended purposes and therefore believes it has reached its maturity. Therefore, TVA is pursuing amendment and termination of the Contract.

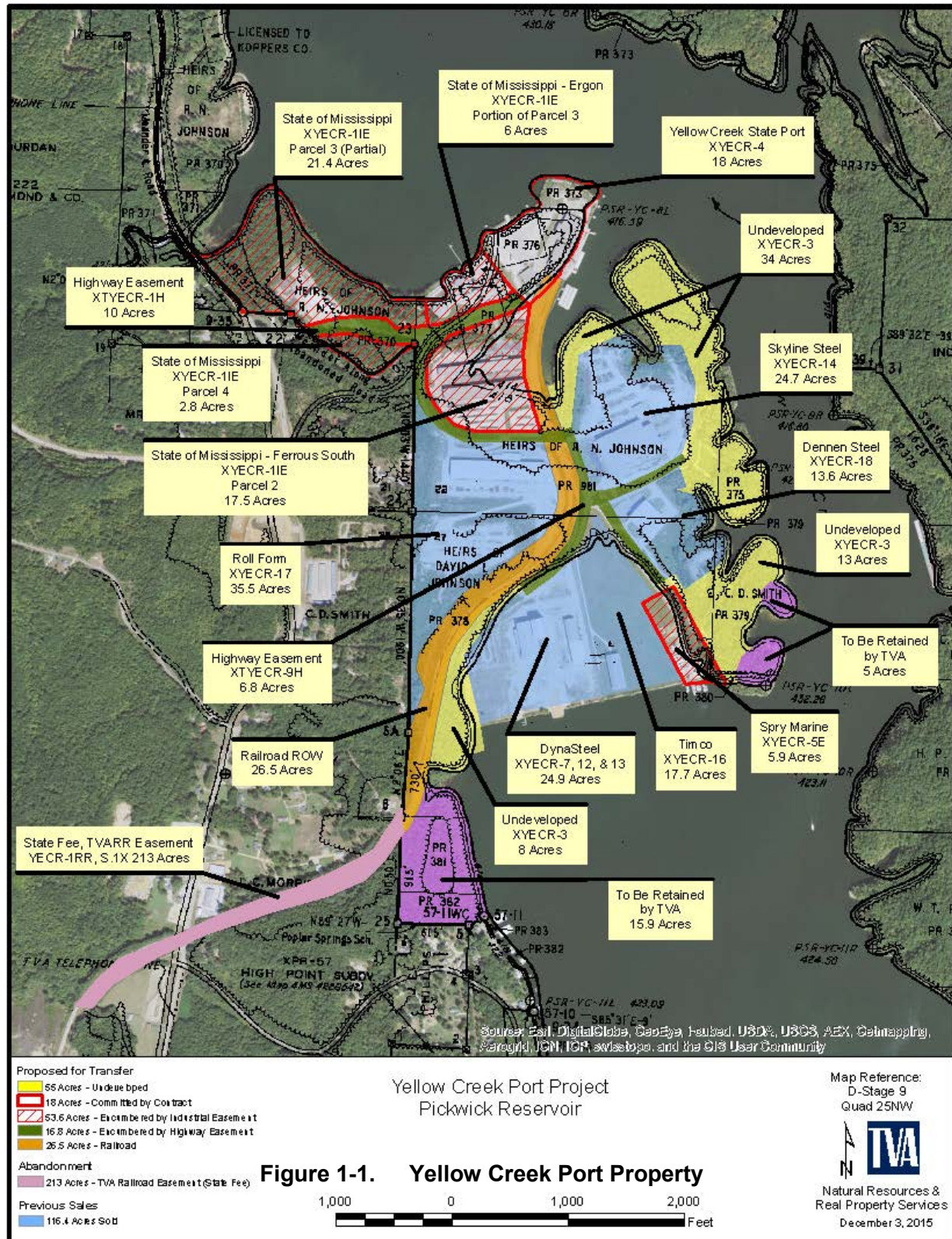
On December 18, 2014, President Barack Obama signed House Resolution 3044 into law (Public Law No. 113–248), allowing TVA to consider transfer of approximately 174 acres of the Port Project properties to the State of Mississippi (State) for economic development purposes. As such, TVA is proposing to transfer the 174-acre Port Project properties, including any existing improvements to the State, under Section 4(k)(b) of the TVA Act which requires prior authorization from Congress to dispose of land assets (Figure 1).

TVA¹ is proposing the following actions:

- Abandon TVA's interest in the railroad spur (213 acres) property that leads into YCP;
- Transfer approximately 174 acres of the Port Project property to the State of Mississippi under Section 4(k)(b) of the TVA Act;
- Issue Section 26a approval for existing port facilities; and
- Amend and terminate Contract TV-62000A.

¹ Title to real property is held in the name of the United States of America for the benefit and use of TVA.

Yellow Creek Port Properties



1.1 Background

In 1971, to facilitate economic development in northeast Mississippi, TVA partnered with the Mississippi Agricultural and Industrial Development Board (now MDA), TRVWMD, and YCPA to plan and construct a river terminal, railroad, and industrial sites, called the Port Project, on Pickwick Reservoir in Tishomingo County, Mississippi under contract TV-34832A, as supplemented. TVA, using \$7.1 million in appropriated funds, constructed a 10.6 mile rail spur (213 acres) and an 18-acre Yellow Creek State Inland Port river terminal (Port). TVA also provided an easement (XYECR-1IE) over approximately 82 acres of property to the State who would be responsible for development of the property. In 1984, Contract TV-62000A was executed between the original partners. The new Contract superseded TV-34832A and provided for additional appropriated funding to ensure long term success of the Port Project.

Further, TVA committed an additional 152 acres of property (XYECR-3) to the Port Project that the State could market for industrial development. Of the approximately 290 acres of property provided/committed (to the Port Project) by TVA, 116.4 acres have been sold for industrial use by TVA. TVA retains fee interest in approximately 174 acres of Port Project property and a limited easement in the 213-acre railroad spur adjacent to the Port Project. A summary of the current status of the approximately 174 acres of remaining Port Project property proposed for transfer to the State is shown in Table 1-1. Of the 174 acres, approximately 76.2 acres are undeveloped (XYECR-3, XYECR-1IE Parcel 4 and approximately 21.4 acres of XYECR-1IE Parcel 3). All 174 acres would be available for future industrial development. All of the remaining TVA fee land has been allocated for industrial development by the Pickwick Reservoir Land Management Plan which was approved by the TVA Board of Directors in 2001.

Table 1-1. Current Status of the approximately 174 acres of Remaining Port Project Property

Current Port Property Use	Approximate Acreage*
Permanent Industrial Easement (XYECR-1IE)	47.7
Yellow Creek State Inland Port river terminal	18
Spry Marine	5.9
Railroad	26.5
State and County road easements	16.8
Uncommitted and unencumbered	55

*Exact acreages will be defined by subsequent surveys.

TVA approval is not required for the State to enter into agreements (lease, easement) on the permanent industrial easement property (XYECR-1IE). The State has operational control of the Port property under the Contract. Spry Marine's term easement expired in October 2015, but currently operates under a license agreement. Today, eight industries operate on the Port Project site.

Section 4(k)(b) of the TVA Act empowers TVA in the name of the United States “ to convey by deed, lease, or otherwise, any real property in the possession of or under the control of the corporation to any person or persons, for the purpose of erecting thereon docks and buildings for shipping purposes or the manufacture or storage thereon of products for the purpose of trading or shipping in transportation ” provided that no transfer

authorization herein shall be made without the approval of Congress. Additionally, under federal common law, TVA has the authority to abandon easement interests.

The 1971 and 1984 contracts regarding the Port Project involved the Mississippi Agricultural and Industrial Development Board (now MDA) as a signatory authority, partner and owner of permanent easements. The 1971 and 1984 contracts identified the subject lands as surplus and identified commitments to transfer assets of the project to or with the State. As such, TVA believes the State, through the MDA, is the most appropriate entity to receive these assets.

1.2 Decision to be Made

The decision before TVA is whether or not to amend and terminate Contract TV-62000A, transfer approximately 174 acres of Port Project property to the State under 4(k)(b) of the TVA Act, abandon TVA's interest in the railroad spur (213 acres) property, and issue Section 26a approval for existing port facilities.

1.3 Related Environmental Reviews and Consultation Requirements

Previously completed environmental reviews relevant to this EA include:

Yellow Creek Port Project Environmental Impact Statement (TVA 1971)

This environmental impact statement evaluated the industrial development of YCP. In the environmental review, TVA analyzed potential environmental impacts that would result from the construction of the YCP facilities and a rail spur to serve the site.

Lighthouse Fuels, Inc. Environmental Assessment (TVA and USACE 1997)

The Lighthouse Fuels Inc. EA was prepared by TVA and the United States Army Corps of Engineers (USACE). The EA assessed the environmental impacts of Lighthouse Fuels' request for 37 acres of TVA-managed public land on Pickwick Reservoir and construction of a barge terminal with three separate areas along the reservoir waterfront. The primary purpose of this proposed facility was to procure, merchandise, and deliver wood waste to fossil fuel power plants. The EA concluded there would be no significant impacts to environmental resources and a finding of no significant impact (FONSI) was issued on September 16, 1997.

Pickwick Reservoir Environmental Impact Statement and Land Management Plan (TVA 2002)

This environmental impact statement updated the 1981 Pickwick Reservoir Land Management Plan (1981 Plan) for approximately 19,238 acres of TVA-managed public land on Pickwick Reservoir in Alabama, Mississippi, and Tennessee, and allocated additional land not considered in the 1981 Plan. The 2002 Land Management Plan was prepared to reflect new information and TVA policies, and to guide land use approvals, water use facility permitting, and resource management on Pickwick Reservoir. The plan allocated the YCP properties to industrial and considered cumulative impacts to terrestrial ecology, water quality, visual and other resources.

Appalachian Regional Commission Grant - Roll Form Steel (TVA 2006)

In a March 2006 FONSI, TVA adopted a Community Development Block EA for the construction and operation of Roll Form Steel industry in the Yellow Creek Industrial Park. TVA administered a \$300,000 grant from the Appalachian Regional Commission.

Dennen Steel Corporation Environmental Assessment (TVA 2010)

TVA completed an EA and FONSI for the sale of 13 acres of TVA property within the Port Project to construct and operate a facility for the Dennen Steel Corporation.

1.4 Scoping and Public Involvement

TVA has prepared this EA in accordance with the National Environmental Policy Act (NEPA) and implementing regulations. TVA considered the possible environmental effects of the proposed action and determined that potential effects to the environmental resources listed below were relevant to the decision to be made. Thus, potential effects to the following environmental resources were addressed in detail in this EA:

- Biological resources (aquatic ecology, terrestrial ecology, threatened and endangered species, and wetlands)
- Cultural and Historic resources
- Floodplains
- Land use
- Noise
- Socioeconomics and Environmental justice
- Transportation
- Visual resources
- Water quality

TVA also considered potential effects related to air quality; prime or unique farmland; natural areas; recreation; solid waste and waste streams; and Wild and Scenic Rivers. Potential effects to these resources, however, were found to be absent or minor, and not to require further or only limited consideration. At present, there are no known environmental issues or events on the properties in use.

On October 15, 2015, TVA published a public scoping notice requesting comments on its website. TVA also published the scoping notice in the Daily Journal in Tupelo, Mississippi on October 26, 2015, and in the Daily Corinthian in Corinth, Mississippi on October 20, 2015. TVA received one comment from a member of the public who stated that they do not want TVA to transfer its property to the State of Mississippi.

TVA posted the draft EA on its website for a 30-day comment period and requested the public to submit comments via mail or email. TVA also published a notice requesting comments in the Daily Journal and Daily Corinthian newspapers on February 29, 2016 and March 3, 2016, respectively. TVA sent the draft document to interested local, state and federal agencies and federally recognized tribes (see Chapter 5). TVA did not receive any comments.

1.5 Necessary Permits or Licenses

The proposed land disposal would not require TVA to acquire any permits. Any necessary permits would be obtained by the State or future applicants for use of the property. TVA is aware that the following permits could likely be necessary for construction of future facilities:

Yellow Creek Port Properties

- Approvals from TVA under Section 26a of the TVA Act would be required if new water use facilities in the Tennessee River are needed for future development.
- Authorization(s) under Section 404 of the Clean Water Act (CWA) or Section 10 of the Rivers and Harbors Act, administered by the USACE, are required for disposal of dredge or fill material in waters of the U.S. or construction (i.e., water intake structure) with the potential to obstruct navigation.
- Water quality certification under Section 401 of the CWA could be required as part of the process for permitting development in wetlands or waters of the U.S. or the State of Mississippi.
- National Pollutant Discharge Elimination System (NPDES) permit would be required for and discharge into national waters or streams.
- A Storm Water Pollution Prevention Plan (SWPPP) would be required prior to any land-disturbing activity on the future project sites in accordance with Mississippi Department of Environmental Quality (MDEQ) 2005 guidelines.
- A notice of intent would need to be filed for a “Large Construction Storm Water General Permit for Land Disturbing Activities of Five or More Acres,” authorized under Mississippi Code of 1972, Annotated, Section 49-17-1 et seq.
- Authorization or permits would be required from the appropriate state or county agencies to install and operate future facility septic systems. The State Board of Health is authorized to promulgate rules for individual on-site wastewater disposal systems under and by virtue of Sections 41-3-15(4) (a)(b)(f) and Sections 41-67-1 through 41-67-29 Mississippi Code of 1972, Annotated.

CHAPTER 2 - ALTERNATIVES

Descriptions of the proposed action and its alternatives, a brief comparison of their environmental effects, and TVA's preferred alternative are presented in this chapter.

2.1 Description of Alternatives

This EA documents the evaluation of two alternatives: the No Action and Proposed Action Alternative for the disposal of Port Project properties and other associated actions. A portion of the Port Project property is currently under an easement to the State for industrial purposes; consequently, there are no other viable alternatives but to transfer the fee ownership.

2.1.1 Alternative A – The No Action Alternative

Under the No Action Alternative, there would be no land disposal by TVA and the State would not receive the described Port Project properties. The subject properties would continue to be governed by the State per the Contract and TVA would retain ownership of the approximately 174 acres of the Port Project properties. The State has operational control of the Port property (under the Contract). TVA approval is not required for the State to enter into agreements (lease, easement) on the permanent industrial easement property (XYECR-1IE). Spry Marine's term easement expired in October 2015 and it is currently operating under a license agreement. The State is currently responsible for development on this property and adoption of the No Action Alternative would not change this situation. The State under its easement could chose to develop these parcels. For the foreseeable future, TVA would retain an outlying 15.9 acre tract and an additional approximately 5 acres that contain sensitive resources.

Although no new industries or expansions are proposed for the currently 76.2 undeveloped acres, it is likely that existing industries could expand and new facilities would be proposed. Industrial marketing is an ongoing program responsibility of the YCPA, MDA, Tishomingo County Development Authority and TVA; therefore, it is reasonable to assume that eventually any useful remaining property would be used for industrial/commercial facilities as per the original project goals. The future development or alteration of the Port Project properties would be unrelated to TVA's decision to adopt the No Action Alternative.

2.1.2 Alternative B – The Proposed Action Alternative

Under the Proposed Action Alternative, TVA would dispose of approximately 174 acres of TVA fee-owned property to the State, abandon TVA's interest in the 213-acre railroad spur property, issue Section 26a approval for existing port facilities and would amend and terminate the Contract. The 174 acres includes 64.5 acres encumbered by permanent easements for industrial development and roads. TVA would retain an outlying 15.9 acre tract and an additional 5 acres that contain sensitive resources. TVA would also continue to review requests for water use facilities along the reservoir shoreline under Section 26a of the TVA Act. Before the disposal of land would be completed, TVA would negotiate the State's acceptance of environmental liability spanning its 40-year occupancy with MDA.

Under this alternative, the future landowners could construct and operate additional industrial facilities. In addition, parking, access, water supply, sanitary facilities, and

electrical would be necessary to support any industrial facility. Deed covenants would be provided to restrict the use of land for purposes consistent with 4(k)(b). Due to the identification of sensitive resources, additional deed restrictions would restrict tree removal to winter months (November through March) on XYECCR-3, notification to TVA for any land disturbance proposed on the approximately 21.4 acre portion of Parcel 3 of XTYECCR-1IE, and a deed covenant on Tract XYECCR-4 stipulating that any construction below the 5.6 feet fill zone would require a Section 106 review.

2.1.3 Alternatives Considered but Eliminated From Further Discussion

Other alternatives considered were to modify the existing agreement with various levels of TVA participation; however these potential actions would not fulfill the goals of TVA or the project, or were impractical, or would not achieve the purpose and need of the proposal. The other alternatives were dismissed from further review.

2.2 Comparison of Alternatives

Table 2-1 comparatively summarizes the potential effects that would occur under the two alternatives that were considered in detail.

Table 2-2. Summary and Comparison of Alternatives by Resource Area

Resource Area	Impacts From No Action Alternative	Impacts From Proposed Action Alternative
Aquatic ecology	No significant impacts	Direct, indirect, or cumulative impacts would be insignificant.
Cultural and Historic Resources	Potential direct and indirect impacts (Non-TVA)	No direct, indirect, or cumulative impacts anticipated under adherence to deed restrictions.
Floodplains	Floodplain functions would not be affected.	Floodplain functions would not be affected.
Land use	Land uses would be similar to those already occurring or likely to occur.	Land uses would be similar to those already occurring or likely to occur.
Noise	Temporary increase in noise from construction equipment. Long-term insignificant impacts.	Temporary increase in noise from construction equipment. Long-term insignificant impacts.
Socioeconomics and Environmental justice	Minor, temporary impacts during future construction.	Minor, temporary impacts during future construction. Minor long-term beneficial impacts.
Threatened and Endangered Species	No effects to endangered or threatened plant or aquatic species or designated critical habitats are anticipated. May effect, but are not likely to adversely affect northern long-eared bat and Indiana bat, nor would the actions jeopardize the continued existence of either species	No effects to endangered or threatened plant or aquatic species or designated critical habitats are anticipated. With the implementation of the deed covenant limiting tree clearing to October 15 to March 31, TVA has made a no effect determination as the covenant would remove any potential for direct effects to Indiana bat and northern long-eared bat, and ensure that indirect effects from potential loss of habitat are discountable.

Resource Area	Impacts From No Action Alternative	Impacts From Proposed Action Alternative
Transportation	No significant impacts	Direct, indirect, or cumulative impacts would be insignificant.
Water quality	Temporary direct, indirect and cumulative impacts would be insignificant with use of best management practices.	Temporary direct, indirect and cumulative impacts would be insignificant with use of best management practices.
Wetlands	Minor and insignificant	Minor and insignificant
Wildlife	Minor, short-term direct, indirect, and cumulative impacts on wildlife or wildlife habitat.	Minor, short-term direct, indirect, and cumulative impacts on wildlife or wildlife habitat.
Vegetation	No significant impacts	No direct, indirect or cumulative impacts to terrestrial plant communities. Long-term insignificant impacts on plant communities on site.
Visual resources	minor adverse direct, indirect and cumulative visual impacts	Minor, temporary short-term impacts during construction of future facilities. Minor adverse impacts during operation of future facilities.

2.3 Identification of Mitigation Measures

Depending upon the specific development, its footprint on the property, and supporting activities following transfer of the property, some mitigation would likely be required by other federal, state, and local authorities in order to acquire necessary permits and other authorizations (see Section 1.5). Future owners would utilize appropriate best management practices during construction and operation of the property in order to comply with necessary permits and authorizations. TVA would establish the following transfer covenants and mitigation measures:

Undeveloped Property (Parcel XYECR-3) Transfer Covenants

1. TVA will require the deed, transfer, or other conveyance documents to include a covenant to limit tree clearing to October 15 to March 31, unless the future owners either (i) demonstrate that there is no summer roosting habitat for the Indiana and northern long-eared bats prior to any tree clearing or (ii) obtains U.S. Fish and Wildlife Service (USFWS) concurrence that no impact to these species could occur at any time of year.
2. TVA retains the right to temporarily and intermittently flood to elevation 425 and will not be liable for damages resulting from flooding.

- **Inland Port Transfer Covenants:**

1. To avoid any future potential effects to resources that may be eligible for the National Register of Historic Places, TVA will place a deed covenant on Tract XYECR-4 stipulating that any construction below the 5.6 ft fill zone will require a Section 106 review.
2. Any future facilities or equipment subject to flood damage will be located above or floodproofed to elevation 421.6 (Flood Risk Profile elevation plus 2 vertical feet).
3. Any future development proposed within the limits of the 100-year floodplain, elevation 419.5, will require written approval from TVA prior to construction to ensure it is consistent with the requirements of Executive Order 11988.
4. All future development will require written approval from TVA prior to construction to ensure it is consistent with the requirements of the TVA Flood Control Storage Loss Guideline. The Flood Control Storage Loss Guideline applies from elevations 408.0 to 419.6 above mean sea level (msl). The TVA power storage loss zone applies from elevations 408.0 to 414.0 msl.
5. TVA will retain the right to temporarily and intermittently flood below elevation 425, and will not be liable for damages resulting from flooding.
6. Future facilities, equipment, structures (including fill), improvements or buildings proposed below the TVA Flood Risk Profile/500-year flood elevation 419.6 will require written approval from TVA prior to construction.

- **State of MS - Ferrous South -Parcel XYECR-1IE-2, Ergon - Parcel XYECR-1IE-3, Parcel XYECR-1IE-4, and Highway Rights of Way (XTYCER-1H and XTYECR-9H) Transfer Covenants:**

1. TVA retains the right to flood the tract as described in the permanent easement, and will not be liable for damages resulting from flooding.

- **State of MS - Parcel XYECR-1IE-3 (Partial) Transfer Covenants:**

1. TVA will place a restriction in the deed conveying XYECR-1IE Parcel 3 to MDA that prohibits any land-disturbing from being conducted on this property without prior written approval from TVA.
2. TVA will retain the right to flood the tract as described in the permanent easement, and will not be liable for damages resulting from flooding.

- **Spry Marine (Parcel XYECR-5E) and Railroad Right-of-Way (within YCP) Transfer Covenants:**

1. TVA retains the right to temporarily and intermittently flood to elevation 425 and will not be liable for damages resulting from flooding.

2.4 The Preferred Alternative

TVA's preferred alternative is the Proposed Action Alternative, under which the subject land is disposed of, the railroad Right of Way easement is abandoned, TVA issues 26a approval for existing port facilities, and Contract TV-62000A is amended and terminated.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the nature, extent, and importance of environmental resources in their existing setting on the project area. It provides a baseline for the assessment of potential effects of the alternatives described in Chapter 2. The affected environment descriptions below are based on field surveys conducted August 2015 and December 2015. This chapter also presents the anticipated environmental consequences that would occur to the various resources from the adoption of Alternative A—No Action and Alternative B—Proposed Action. This information is summarized in Section 2.2 and in Table 2-1. The existing environmental conditions and those environmental resources that could be affected by the Proposed Action Alternative are described in the following section.

No major air pollutant emissions are anticipated from industrial operations at the current or future manufacturing facilities. Potential air quality impacts would likely occur from fugitive dust generated as a direct result of the movement of construction equipment for future projects. Such fugitive emissions would become negligible at the end of facility construction and successful completion of a site vegetation plan for grassed and landscaped areas. Therefore, implementation of either alternative is anticipated to have minor and temporary construction-related impacts to air quality.

There would be no loss of prime or unique farmlands resulting from the proposed federal action; therefore, no impact to farmland is anticipated. The project area is located approximately 1.0 mile from six developed recreation areas. Because of this physical separation, the proposed action would not affect the developed recreation areas. Because substantial industrial development presently occurs in the project area, the extent of any impacts to dispersed recreation would be minor and insignificant. There are no natural areas within the boundaries of the Port Project properties. The following occur within one mile of the project site: Sandstone Outcrops Protection Planning Site, Pickwick Lake Bluffs, Cooper Falls TVA Habitat Protection Area, Mississippi Wildlife and Recreation Land, and JP Coleman State Park. Other natural areas within a 3-mile radius include Divide Section Wildlife Management Area and Lauderdale County State Wildlife Management Area. Since no natural areas are located within the boundaries of the Port Project properties and all of the Natural areas in the area are of sufficient distance, no impacts are anticipated to natural areas associated with the adoption of either Alternative.

All solid waste would continue to be managed in compliance with Mississippi's Nonhazardous Solid Waste Management Regulations and Criteria, such measures include recycling all recyclable materials and requiring the construction contractor to comply with all federal, state, and local laws. Therefore, the adoption of the Proposed Action Alternative would not result in major impacts from solid waste and waste streams. Because no designated Wild and Scenic Rivers or their tributaries occur at or adjacent to the project area, the proposed action is not anticipated to affect these designated waters.

Future use of the Port Project properties would be subject to a number of environmental regulations and permitting processes depending on the type of the development. Since 1970, thousands of requirements that protect the environment have been established under federal, state, and local authorities. Many of these requirements limit emissions and discharges and other potential environmental impacts from industrial facilities. These

include regulatory and permitting programs established under the Clean Air Act, the Clean Water Act, Resource Conservation and Recovery Act, the Solid Waste Disposal Act, the Emergency Planning & Community Right-To-Know Act, Safe Drinking Water Act, the Noise Control Act, and the Federal Insecticide, Fungicide & Rodenticide Act. Most of these programs and permitting processes include multiple opportunities for public involvement. Most allow citizens to bring lawsuits to enforce compliance with requirements and provide comprehensive enforcement schemes, including civil and criminal sanctions. Although this protective web of environmental laws and regulations does not eliminate all risk of environmental impacts, it substantially reduces such risks and collectively helps ensure that potential impacts are not significant.

3.1 Aquatic Ecology

3.1.1 Affected Environment

The proposed Port Project properties are located in the Little Yellow Creek-Yellow Creek watershed. A total of 10 aquatic features were observed in the land disposal area, all of which were classified as ephemeral (wet-weather conveyances) streams.

The Transition Hills subregion is characterized by some of the highest elevations in the Southeastern Plains ecoregion. Many of the streams and conveyances in this area have cut deep into the rock layers that lie underneath, thus creating deep crevices and steep stream banks. This characteristic was observed in many of the ephemeral streams in the land disposal area, especially those that occurred closest to Pickwick Reservoir. All conveyances encountered during the December 2015 field survey were of medium-low gradients, as is typical of this ecoregion (Chapman et al. 2004).

3.1.2 Environmental Consequences

Alternative A

Under the No Action Alternative, established encumbrances and easements unrelated to the No Action Alternative would allow for actions on these properties. If these lands were to be developed or otherwise altered, the changes would be unrelated to the TVA decision to adopt the No Action Alternative. Changes to aquatic ecology may also potentially occur over the long term due to current and potentially future industrial activities that take place within the project area. However, any potential future actions involving access to or modification of the shoreline would require Section 26a approval from TVA along with further project-specific environmental reviews (i.e., State 401 Water Quality Certification and USACE 404 Permits). Thus, any direct or indirect impacts to aquatic ecology resulting from development of the Port Project properties under Alternative A would be insignificant.

Alternative B

Under Alternative B, impacts to aquatic ecology would be similar to those already occurring or likely to occur. Soil disturbances associated with construction activities could potentially result in soil erosion and sedimentation from storm water runoff and could temporarily impact water quality in Pickwick Reservoir; however this would only affect aquatic habitat along the shoreline.

Any potential future actions involving access to or modification of the shoreline would require Section 26a approval from TVA along with further project-specific environmental reviews. No new in-stream construction or shoreline modifications are proposed; therefore, no direct impacts to the aquatic environment would occur.

In addition, applicable State 401 Water Quality Certification and USACE 404 Permits would be obtained for any stream alterations located within the project area and the terms and conditions of these permits could require mitigation from the proposed activities. Implementation of Alternative B, would also provide deed covenants to restrict the use of land for purposes consistent with 4(k)(b). Additional deed restrictions would confine tree removal to winter months and notification to TVA for any land disturbance proposed on approximately 21.4 acres of Parcel 3 of XTYECR-11E would be required. Thus, any direct or indirect impacts to aquatic ecology resulting from development of the Port Project properties under Alternative B would be insignificant.

3.2 Terrestrial Ecology - Vegetation

3.2.1 Affected Environment

The proposed transfer of the 174-acre Port Project properties lies within the Transition Hills Level IV ecoregion, a subregion of the Southeastern Plains ecoregion. The ecoregion begins in Hardin County, Tennessee, which includes part of the Tennessee River and travels south, through Pickwick Reservoir, to Itawamba County, Mississippi. The region has thinner loess than the Mississippi Valley Loess Plains to the west, and elevations and relief are greater than in the Southern Coastal Plain, near the Gulf of Mexico, and Mississippi Alluvial Plain, to the west. The Ecoregion has some of the highest elevations of the Southeastern Plains and many streams in this transition zone have cut down into the Mississippian and Devonian-age rocks and look very similar to those of the Interior Plateau. Although there are small areas of cropland and pasture in the valleys and on gently sloping ridges, the region is mostly forested with oak-hickory-pine forest (Chapman et al. 2004).

Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types found within the proposed transfer of properties can be classified as a combination of herbaceous vegetation, evergreen, and mixed evergreen-deciduous forest. All plant communities observed within the proposed transfer properties are common and well represented throughout the region. No forested areas have structural characteristics indicative of old growth forest (Leverett 1996).

Herbaceous vegetation is characterized by greater than 75 percent cover of forbs and grasses and less than 25 percent cover of other types of vegetation. Herbaceous vegetation occurs throughout the industrial park, especially around buildings and other man-made structures, and along the Railroad track in the south. Common species found include: dallis grass, *Sericea lespedeza*, yellow bristle grass, and white clover.

Mixed evergreen-deciduous forest, where both evergreen and deciduous species contribute 25-75 percent of total canopy cover, accounts for about 95 percent of total forest cover. These areas are upland forests on gradual sloping terrain with small scattered shale outcrops, especially near the shoreline of the lake, and commonly contain the evergreens eastern red cedar, loblolly and short leaf pine. Deciduous trees in canopy include beech, black gum, chestnut oak, mockernut hickory, pignut hickory, post oak, red maple, shagbark hickory, sweetgum, and white oak. Both of the state-listed bur oak and Virginia pine are also found in this forest type. The diameter at breast height for trees ranged between 6 inches and 24 inches. Plants in the understory include bigleaf snowbell, common serviceberry, devil's walking stick, farkleberry, flowering dogwood, ironwood, mountain holly, persimmon, plumleaf viburnum, redbud, and St. Andrew's cross, as well as immature canopy species. Herbaceous plants and woody vines include Christmas fern, flowering spurge, Japanese honeysuckle, muscadine, poison ivy, slender woodoats, smooth yellow

false foxglove, trumpet creeper, and Virginia creeper. This forest type is found in the State of Mississippi XYECR-11E (Parcel 4) and in the Undeveloped XYECR-3 tracts in the east.

Evergreen forest, which accounts for about five percent of the total forest cover, has relatively low species compared to the mixed evergreen-deciduous forest. These small isolated stands are mostly made up of short-leaf pine with some immature deciduous canopy species and crane fly orchid. These stands had an average diameter of 12 to 24 inches, with some trees reaching three feet in diameter. Most of these stands are located in the northern section of the Undeveloped XYECR-3 tract.

Executive Order (EO) 13112 defines an invasive species as any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem and whose introduction does or is likely to cause economic or environmental harm or harm to human health. They occur as trees, shrubs, vines, grasses, ferns, and forbs. These robust plants have few natural predatory insects or diseases, such as those that tend to keep native plants in natural balance.

During the August 2015 field surveys, invasive plants were found in both forest and herbaceous vegetation types. Areas of herbaceous vegetation generally contained both greater numbers and cover of nonnative, invasive plant species. This likely reflects the frequency and magnitude of disturbance present in areas of herbaceous vegetation. Disturbances associated with mowing and construction activities prevent tree species from becoming established, but can also encourage invasion and establishment of weedy plants. No federal-noxious weeds were observed, but two species (Japanese honeysuckle and sericea lespedeza) were observed in the project area.

3.2.2 Environmental Consequences

Alternative A

Under the No Action Alternative, natural plant communities on the 55 undeveloped acres on XYECR-3 and plant habitats on other lands proposed for transfer may or may not be adversely affected by future development. Established encumbrances and easements on XYECR-11E parcels unrelated to the No Action Alternative allow for actions on these properties. If these lands were to be developed or otherwise altered, the changes would be unrelated to the TVA decision to adopt the No Action Alternative. In addition, all plant communities found on the Port Property are common and well represented throughout the region. All invasive plants found in the project area are common in Mississippi and implementation of the No Action Alternative would not change this situation. Adoption of the No Action Alternative would not significantly affect the terrestrial ecology of the region.

Alternative B

Implementation of Alternative B would facilitate industrial development by the proposed transfer of Port Property to the State. In addition, parking, access, water supply, sanitary facilities, and electrical would be necessary to support any industrial facility. Potential future industrial development would likely result in some tree clearing, but the amount would be small. All plant communities found on the Port Project properties are common throughout the region. As of 2013, Tishomingo and the adjacent counties supported over 1.3 million acres of forest (U.S. Forest Service 2015). Cumulatively, project-related effects to forest resources would be negligible when compared to the total amount of forestland occurring in the region. Small portions of the Port Project properties have a high concentration of invasive plant species, but no species listed as federal noxious weeds were observed. All

invasive plants found in the project area are common in Mississippi and implementation of Alternative B would not change this situation.

Development would have long-term direct and indirect impacts on the plant communities found on site. However, the cumulative effects would be small and insignificant at the local, regional, or state-level because plant communities located on the Port Project properties are common and possess little conservation value. The proposed abandonment of the railroad spur, issuance of 26a approval and amendment and termination of the Contract would not impact plant communities in the area.

3.3 Terrestrial Ecology – Wildlife

3.3.1 Affected Environment

Habitat assessments for terrestrial animal species were conducted on December 29, 2015. The landscape directly surrounding the project footprint is a combination of open water, industrial area, forest, roads, and residential homes. The 55 acres of forested area on XYECR-3 are the only undeveloped portions of the port property not under easement. Forested areas include evergreen forest, deciduous forest and mixed deciduous-evergreen forest. Each of the varying community types offers suitable habitat for species common to the region both seasonally and year-round.

Evergreen forests encountered during field surveys were typically pine forests. These forests provide habitat for common terrestrial species. Barred owl, brown creeper, golden-crowned kinglet, hermit thrush, pine siskin, pine warbler, red-breasted nuthatch, summer tanager, wild turkey, yellow-rumped warbler, and yellow-throated warblers all utilize this habitat in this region (National Geographic 2002; Turcotte and Watts 1999). Cotton deermouse, white-footed deermouse, eastern fox squirrel, Seminole bat, and wild boar are mammals that may utilize resources found in pine forests of this area (Kays and Wilson 2002; Reid 2006). Eastern hognose snake, eastern narrowmouth toad, eastern spadefoot toad, Fowler's toad, and northern scarlet snakes are found in open pine forests in this region (Conant and Collins 1998; Gibbons and Dorcas 2005).

Deciduous forests and mixed deciduous-evergreen forests provide habitat for an array of terrestrial animal species. Birds typically found in this type of habitat in this region include chuck-will's-widow, downy and hairy woodpecker, eastern screech-owl, eastern wood-pewee, red-tailed hawk, white-breasted nuthatch, wood thrush, and yellow-billed cuckoo (National Geographic 2002; Turcotte and Watts 1999). This area also provides foraging and roosting habitat for several species of bat, particularly in areas where the forest understory is more open. Some examples of bat species likely found within this habitat in this region include big brown bat, little brown bat, eastern red bat, evening bat, hoary bat, Rafinesque's big-eared bat, silver-haired bat, and tricolored bat. Coyote, eastern chipmunk, eastern woodrat, North American deermouse, and woodland vole are other mammals that may be present within this habitat and region (Kays and Wilson 2002; Reid 2006). Gray rat snake and midland brown snake, as well as scarlet kingsnake, are all common reptiles found regionally in this type of habitat (Conant and Collins 1998). In forests with aquatic features, amphibians likely found in the area include dusky, marbled, and spotted salamanders as well as Cope's gray treefrog, and southern leopard frog (Conant and Collins 1998; Niemiller and Reynolds 2011).

Wildlife habitat within the industrial areas is restricted to manicured herbaceous fields (lawns) with fragments of shrubs and trees. These areas offer little suitable habitat for rare

wildlife species, but can be used by many common species. Birds that utilize grassy areas in industrialized areas such as this include Canada goose, eastern phoebe, eastern kingbird, eastern meadowlark, killdeer, purple martin, red-tailed hawk, and rock dove (National Geographic 2002). Birds that utilize planted trees and buildings in industrialized areas include American robin, American goldfinch, blue jay, Carolina chickadee, Carolina wren, chimney swift, eastern towhee, osprey, tufted titmouse, northern cardinal, northern mockingbird, and yellow breasted chat (National Geographic 2002). Mammals that may be found in this type of environment include common mole, ground hog, least shrew, hispid cotton rat, white-footed mouse, common raccoon, Virginia opossum, eastern gray squirrel, coyote, and white-tailed deer (Reid 2006). Reptiles that typically occur in such areas include eastern fence lizard, five-lined skink, rat snake and ring-necked snake (Conant and Collins 1998).

Review of the TVA Regional Natural Heritage database on January 4, 2016, indicated that one cave occurs within three miles of the project footprint. The cave is approximately 0.8 miles from the project footprint. No caves were observed during field review on December 29, 2015. No other unique or important terrestrial habitats exist on the project site.

One osprey nest has been reported approximately 1.9 miles from the project footprint. During field reviews no heron rookeries, osprey nests, or bald eagle nests were on the Port Project property proposed for disposal or in the immediately surrounding area. No other unique habitats were identified during field surveys.

3.3.2 Environmental Consequences

Implementation of either Alternative A or Alternative B could facilitate industrial development. Potential future industrial development would likely result in some tree clearing, but the amount would be small. Impacts to wildlife would occur where development would remove vegetative habitat, particularly in areas where the forested areas would be cleared. Any wildlife currently using the developed/heavily disturbed areas (primarily common, habituated species) may be displaced by increased levels of disturbance during construction actions, but it is expected that they would return to the project area upon completion of actions.

Approximately 55-acres of unencumbered forested habitat could potentially be removed and permanently maintained as industrial development after the land is disposed. Direct effects of forest removal within the project footprint may occur to some individuals that may be immobile during the time of construction (i.e. juvenile animals or eggs). This could be the case if construction activities took place during breeding/nesting seasons. However, the actions are not likely to affect populations of species common to the area, as similar forested habitat exists in the surrounding landscape. Additional forested habitat would be retained by TVA in the outlying 15.9 acre tract and approximately 5 acres with sensitive resources.

Construction-associated disturbances and habitat removal would force wildlife to move into surrounding areas in an attempt to find new food sources, shelter sources and to reestablish territories. In the event that the surrounding areas are already overpopulated, further stress to wildlife populations could occur to those species presently utilizing these areas as well as those attempting to relocate. However, the proposed project footprint and surrounding landscape is heavily forested though fragmentation due to residential homes, roads, and railroad tracks is apparent. It is unlikely that the species currently occupying habitat surrounding the project footprint would be negatively impacted by the influx of new

residents. It is expected that over time any displaced individuals able to utilize early successional habitat would return to the project area upon completion of actions.

There would be short-term direct, indirect, and cumulative impacts on wildlife found on site. However, the effects would be insignificant at the local, regional or state-level because similar habitat is available for wildlife in surrounding areas. Direct, indirect, or cumulative impacts to wildlife or wildlife habitat are expected to be minor.

3.4 Threatened and Endangered Species

3.4.1 Affected Environment

The Endangered Species Act (ESA) requires federal agencies to conserve listed species and to determine the effects of their proposed actions on the endangered and threatened species and their critical habitats. Endangered species are those determined to be in danger of extinction throughout all or a significant portion of their range. Threatened species are those determined to likely become endangered within the foreseeable future. Section 7 of the ESA requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) when their proposed actions may affect endangered or threatened species and their critical habitats.

The State of Mississippi provides protection for species considered endangered or of special concern within the state other than those federally listed under the ESA. The listing is handled by the Mississippi Commission on Wildlife, Fisheries and Parks; however, the Mississippi Natural Heritage Program and TVA both maintain databases of aquatic animal species that are considered endangered or of special concern in Mississippi.

Plants

A July 2015 review of the TVA Regional Natural Heritage Database indicated that one federally listed (white fringeless orchid) and sixty-one state-listed plant species occur within a five-mile vicinity of the project area (Table 1 in Appendix A). No additional federally listed plant species have been previously reported from Tishomingo County, Mississippi, where the property transfer would occur. No designated critical habitat for plant species occurs within the project area. In addition to the species previously reported from the vicinity of the proposed project, one state-listed species was observed. The other species found, Virginia pine, was known within five miles. Other rare plant species, such as the spring ephemerals slender toothwort, two-leaf toothwort, and waterleaf could be found in the habitat of the Undeveloped XYECR-3 in the east.

Both bur oak and Virginia pine were found in the northwestern section of the State of Mississippi XYECR-11E tract (Parcel 3), close to the reservoir shoreline. Two mature bur oaks were found a couple of hundred feet apart and ten mature Virginia pine trees were found clustered together.

Terrestrial Animals

A review of the TVA Regional Natural Heritage database on January 4, 2016, resulted in no state or federally listed terrestrial animal species, one federally protected species (bald eagle), and seven species (mountain chorus frog, red salamander, oldfield mouse, mole kingsnake, black kingsnake, southern coal skink, and queen snake) tracked by the State of Mississippi within three miles of the project footprint. Five federally listed species (red-cockaded woodpecker, gray bat, Indiana bat, northern long-eared bat, and Mitchell's Satyr) have been documented in Tishomingo County, Mississippi. In addition, the USFWS has

determined that the federally threatened woodstork has the potential to occur in the Tishomingo County, thus impacts to this species also were evaluated. A list of these species can be found in Table 2 of Appendix A.

Mountain chorus frogs are generally associated with the Appalachian Mountains and surrounding foothills. This species uses grassy pools or ditches for breeding sites, and inhabits surrounding fields and woodlands outside the breeding season (Lemmon 2008). Red salamanders are found beneath rocks and leaf litter in or near cold, clear, rocky streams in wooded and open areas, and in forested wetlands (Floyd 2008). Queen snakes utilize relatively open, sunny areas along cool, rocky streams and rivers, but may seek refuge under flat rocks and undercut banks (Dorcas and Willson 2008). Records document the occurrence of two Mountain chorus frogs, one red salamander, and one queen snake within three miles of the project footprint. These records are approximately 476 feet (Mountain chorus frog), 1.1 miles (queen snake), and 1.8 miles (red salamander) away from the project footprint. No suitable habitat for these species exists within the project footprint.

Mole kingsnakes occur in upland forests, and fallow agricultural fields and pastures (Krysko and Means 2008). Black kingsnakes use grasslands, old fields, savanna, and forested areas. This species may burrow in the soil, leaf litter, and use fallen logs as refuge (NatureServe 2016a). Southern coal skinks are similar to coal skinks in that they inhabit leaf litter in humid, wooded areas, including mixed hardwood-pine forest, swamps, bogs, springs, and wetlands. They also use clear cuts, rights-of-way, and dry bluffs (Camp 2008; Tilley and Huheey 2001). Records document the occurrence of two black kingsnakes, one mole kingsnake, and one southern coal skink within three miles of the project footprint. These records are approximately 1.1 miles (southern coal skink), 1.6 miles (black kingsnake), and 2.5 miles (mole kingsnake) away from the project footprint. Suitable habitat for these species likely exists within the project footprint.

Oldfield mouse is associated with dry sandy fields and beaches with herbaceous cover. This species occupies underground burrows during periods of inactivity and reproduction (NatureServe 2016b). One record of oldfield mouse has been recorded in Tishomingo County, approximately 2.9 miles from the project footprint. Suitable habitat for this species does not exist within the project footprint.

The federally endangered Mitchell's satyr butterfly is a medium-sized butterfly with an overall rich brown color. A distinctive series of orange-ringed black circular eyespots with silvery centers are located on the lower surfaces of both pairs of wings. This butterfly is one of the most geographically restricted eastern butterflies. It occurs in wetlands where low nutrient systems receive carbonate-rich ground water from seeps and springs (USFWS 1992). In Mississippi, Mitchell's satyr has been found in small upland wetlands created by beaver dams and in wetlands formed by road culverts. The greatest threat to the Mitchell's satyr is habitat destruction caused by beaver control, draining and filling of wetlands, invasion from exotic weeds, and contamination of wetlands by pesticides, fertilizer, and nutrient runoff from adjacent agriculture (*personal communication* Kathy Lunsford, USFWS). Site surveys in December 2015 determined that no wetlands found within the project footprint would provide suitable habitat for Mitchell's satyr.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (USFWS 2013). This species is associated with large, mature trees capable of supporting its massive nests. These are usually found near large waterways where the eagles forage (Turcotte and Watts 1999). Records document the occurrence of four bald eagle nests in Tishomingo County, of

which three are greater than 25 miles from the project footprint. The closest bald eagle nest record is approximately 2.0 miles from the project footprint. No bald eagle nests or resident bald eagle pairs were observed during a field review at the property disposal site on December 29, 2015. Suitable nesting habitat for bald eagle may exist on the property disposal site in forested areas along the shoreline within the project footprint. However, it is unlikely that bald eagles are currently using the project footprint for nesting as surveys were conducted during nesting season and no nests or pairs were seen in the area.

Red-cockaded woodpeckers typically inhabit open, mature, pine forests with dense groundcover consisting of a variety of grass, forb and shrub species (Turcotte and Watts 1999; USFWS 2003). These woodpeckers are thought to be extirpated from most of their habitat including Tishomingo County (USFWS 2016a). The one record that exists from Tishomingo County, Mississippi is historic and greater than 25 miles away from the project footprint. No known managed populations of this species occur within the project footprint and no preferred habitat was observed within the proposed project footprint during field reviews on December 29, 2015.

Wood Storks are wading birds known to inhabit freshwater wetlands as well as brackish wetlands in natural and man-made impoundments adjacent to streams and shallow lakes. They nest in large rookeries in the canopies of trees such as cypress, in mangroves, or in snags (NatureServe 2016c; USFWS 2016b). There are no known records of woodstorks from Tishomingo County. No rookeries are known from the action area and none were observed within the project footprint during field surveys in December 2015. Suitable nesting habitat for this species does not exist within the project area.

Gray bats roost in caves year-round and migrate between summer and winter roosts (Brady et al. 1982; Tuttle 1976). Bats disperse over bodies of water at dusk where they forage for insects emerging from the surface of the water (Harvey 1992). Although more closely associated with caves, gray bats have been documented roosting in large numbers in buildings (Gunter and Elder 1971). Gray bats have historically been documented in Tishomingo County. The abandoned chalk mine from which this species was reported has since collapsed and is no longer thought to be suitable for hibernating bats (*personal communication* Kathy Lunsford, USFWS). Nonetheless, Tishomingo County is within the known range of this species, thus this species still has the potential to occur in the project footprint. No caves have been reported in the project footprint and none were observed during field review of the project footprint. The nearest documented cave is approximately 0.8 miles from the project footprint. No suitable roosting or foraging habitat for gray bat was noted during field reviews of the project footprint on December 22, 2015.

Indiana bats hibernate in caves in winter and use areas around them in fall and spring (for swarming and staging), prior to migration back to summer habitat. During the summer, Indiana bats roost under the exfoliating bark of dead and living trees in mature forests with an open understory often near sources of water. Indiana bats are known to change roost trees frequently throughout the season, yet still maintain site fidelity, returning to the same summer roosting areas in subsequent years. This species forages over forest canopies, along forest edges, and tree lines, and occasionally over bodies of water (Pruitt and TeWinkel 2007, Kurta et al. 2002, USFWS 2015). Indiana bats have historically been documented in Tishomingo County. The abandoned chalk mine from which this species was reported has since collapsed and is no longer thought to be suitable for hibernating bats (*personal communication* Kathy Lunsford, USFWS). Nonetheless, Tishomingo County is within the known range of this species, thus this species still has the potential to occur in

the project footprint (USFWS 2016c). The closest known extant record of Indiana bat is from McNairy County, Tennessee approximately 9.7 miles away. The one cave known within three miles of the project is approximately 0.8 miles away. No caves were observed during field visits on December 22, 2015. Foraging habitat exists throughout the proposed project footprint over forested areas. Suitable summer roosting habitat for Indiana bat exists within three forested sections in the project footprint.

The northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During the fall and spring they utilize entrances of caves and the surrounding forested areas for swarming and staging. In the summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees. Roost selection by northern long-eared bat is similar to Indiana bat; however it is thought that northern long-eared bats are more opportunistic in roost site selection. This species has also been documented roosting in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014). Northern long-eared bats have historically been documented in Tishomingo County. The abandoned chalk mine from which this species was reported has since collapsed and is no longer thought to be suitable for hibernating bats (*personal communication* Kathy Lunsford, USFWS). Nonetheless, Tishomingo County is within the known range of this species, thus this species still has the potential to occur in the project footprint (USFWS 2014, 2016d). The one cave known within three miles of the project is approximately 0.8 miles away. No caves were observed during field visits on December 22, 2015. Foraging habitat exists throughout the proposed project footprint over forested areas. Suitable summer roosting habitat for northern long-eared bat exists within three forested sections in the project footprint.

Suitable summer roosting habitat for both Indiana and northern long-eared bats found within the proposed project footprint totaled 13.62 acres. Three sections of forest were identified within the proposed project footprint as either moderate or highly suitable roosting habitat due to a high concentration of white oaks, shag bark hickories and/or snags with exfoliating bark. Suitable summer roosting areas were comprised of mature hardwood stands dominated by a mixture of oaks (red and white) and other hardwood species such as sweetgum and shagbark hickories.

Aquatic Species

A December 2015 review of the TVA Regional Natural Heritage Database indicated 20 federally listed species and 37 state listed species occurring within the Little Yellow Creek-Yellow Creek watershed, and/or Tishomingo County, and a 10 mile radius surrounding the Port Project disposal area (Table 3 of Appendix A). Critical habitat for the Slackwater Darter, a federally threatened and state listed species in both Alabama and Tennessee, occurs approximately 19 airline miles to the east of the disposal site. This area is also located upstream of the Port Project properties and any activities related to the disposal site are not anticipated to have any effects on this critical habitat. Critical habitat for the Rabbitsfoot mussel also occurs within the 10 mile radius around the Port Project disposal area. This habitat occurs in the tailwaters of Pickwick Dam and is located approximately 11 river miles downstream of the disposal area. Any activities pertaining to the disposal site are not anticipated to have any effects on this critical habitat.

3.4.2 Environmental Consequences

Alternative A

Plants

The white fringeless orchid, which is listed as proposed threatened under the ESA, has been previously reported from just over one mile east of the Port Project properties. During August 2015 field surveys of the properties proposed for disposal, TVA did not identify any wetlands capable of supporting the species. No federally or state-listed plant species or habitats to support these species are known on or immediately adjacent to the proposed project area. Consequently, no direct, indirect or cumulative impacts to listed plant species are expected to occur under Alternative A.

The August 2015 field surveys resulted in the location of the bur oak and Virginia Pine species on Parcel 3, which is encumbered by the XYECR-11E industrial easement. These species are listed by the Mississippi Natural Heritage Program. The state of Mississippi is currently responsible for development on this property and adoption of the No Action Alternative would not change this situation. The state of Mississippi under their easement could choose to develop these parcels in a way that would impact these plants and their habitats, but the action would be unrelated to the implementation of Alternative A. Other state-listed species, including dwarf larkspur, slender toothwort, two-leaf toothwort, and waterleaf may occur within portions of the undeveloped XYECR-3 tract. Field surveys indicated that marginal habitat for these plants did exist there, but individual plants would not have been visible during the August survey. If the plants are present, adoption of the No Action Alternative would result in no impact to the species or their habitat. Therefore, no direct, indirect or cumulative impacts to state-listed plant species are expected to occur under Alternative A.

Terrestrial Animals

Under Alternative A, the subject properties would remain in their current condition and TVA would retain ownership of approximately 174 acres of the Port Project properties. Future actions would continue to be governed as per the Contract. The future development or alteration of the Port Project properties would be unrelated to TVA's decision to adopt the No Action Alternative. Therefore, no direct, indirect or cumulative impacts to protected terrestrial animal species or their habitats are expected to occur under Alternative A.

Aquatic Species

No known occurrences of federally or state-listed aquatic species or critical habitats to support these species are known on or immediately adjacent to the proposed project area. Therefore, no direct, indirect, or cumulative impacts to federal or state-listed endangered or threatened aquatic species or critical habitats are expected to occur under Alternative A.

Alternative B

Plants

Implementation of Alternative B would not differ from Alternative A because the Port Project properties would likely be developed under either alternative. Furthermore, no federally listed plant species or designated critical habitat occurs on the Port Project properties, no direct, indirect, or cumulative impacts to federal or state-listed plant species are expected to occur under Alternative B.

Terrestrial Animals

Eight terrestrial animal species were assessed based on documented presence within three miles. Six additional federally listed species were addressed based on the potential for the

species to occur in the project footprint. Suitable habitat within the project area is lacking for gray bat, Mitchell's satyr, Mountain chorus frog, oldfield mouse, queen snake, red-cockaded woodpeckers, red salamander, and woodstork. Impacts to these species are not expected to occur as a result of proposed actions.

Suitable habitat likely occurs in the project footprint for bald eagle, mole kingsnake, black kingsnake and southern coal skink; however additional suitable habitat of similar quality exists in the surrounding area. No bald eagle nests or individuals of any of the four other species were seen during field reviews of the project footprint. Direct effects to some individuals may occur during future construction activities; however, impacts to populations of mole kingsnake, black kingsnake, and southern coal skink would not be anticipated. Bald eagles are not expected to be impacted by the proposed actions either based on the lack of presence of this species during field surveys. Nonetheless, it is the obligation of the entity responsible for the properties following disposal by TVA to follow all state and federal environmental laws to ensure there are no impacts to federally protected species. Additional surveys by the property owner may be required when additional development is proposed.

No caves or other winter hibernacula for Indiana bat or northern long-eared bat exist in the project footprint or would be impacted by the proposed actions. However, suitable foraging and summer roosting habitat for both bat species does exist in the project footprint and could be altered or removed for future industrial development. Suitable foraging habitat occurs over and within forested areas throughout the project footprint. Three locations within the project footprint were determined to be suitable for summer roosting Indiana bats and northern long-eared bats due to the high number of snags, large white oaks, shagbark hickories and water sources located within and adjacent to the forested areas. A total of 13.62 acres of suitable summer roosting habitat, within Parcel XYEGR-3, could be removed for future industrial development under the Action Alternative. Thus, TVA would require the deed, transfer, or other conveyance documents to include a covenant to limit tree clearing to October 15 to March 31, unless the future owners either (i) demonstrates that there is no summer roosting habitat for the Indiana and northern long-eared bats prior to any tree clearing or (ii) obtains USFWS concurrence that no impact to these species could occur at any time of year. This would remove any potential for direct effects to Indiana bat and northern long-eared bat, and ensure that indirect effects from potential loss of habitat are discountable.

Cumulative effects of the project on common wildlife species are expected to be negligible. Current actions include disposal of the property, abandoning the railspur, amending and terminating the Contract, and issuing 26a approval for existing facilities. Future actions across the project area could permanently remove existing wildlife habitat for common species. Much of the proposed project footprint is already heavily impacted by industrial development. Existing forested areas are already fragmented and isolated along the shoreline due to development in the interior. Additional forested shoreline exists immediately across Pickwick Reservoir as well as to the north and south of the project area along the eastern shoreline.

Effects to the environment would occur primarily from future potential site preparation and construction. On properties with existing facilities, environmental impacts would be similar to those already occurring or expected to occur. Under either alternative, much of the wildlife in the study area would likely be eventually displaced as new facilities were constructed, but direct impacts to wildlife would be minor as individuals would be able to

move to other nearby habitats in the surrounding landscape. With the implementation of the deed covenant limiting tree clearing to October 15 to March 31, TVA has made a no effect determination as the covenant would remove any potential for direct effects to Indiana bat and northern long-eared bat, and ensure that indirect effects from potential loss of habitat are discountable.

Aquatic Species

Implementation of Alternative B would not differ from Alternative A because the Port Project properties would likely be developed under either alternative. No known occurrences of federally or state-listed aquatic species or critical habitats to support these species are known on or immediately adjacent to the proposed project area. Therefore, no direct, indirect, or cumulative impacts to federal or state-listed endangered or threatened aquatic species or critical habitats are expected to occur under Alternative B.

3.5 Wetlands

3.5.1 Affected Environment

Wetlands are those areas inundated by surface or groundwater such that vegetation adapted to saturated soil conditions is prevalent. Examples include swamps, marshes, bogs, and wet meadows. Wetland fringe areas are also found along the edges of most watercourses and impounded waters (both natural and man-made). Wetland habitat provides valuable public benefits including flood/erosion control, water quality improvement, wildlife habitat, and recreation opportunities.

Field surveys were conducted in December 2015 to delineate wetland areas within the approximately 55-acres of undeveloped property within the Port Project properties proposed for disposal. This survey located and delineated one wetland (Figure 3-1). Wetland 1 (W001) is a 0.12-acre forested wetland present on the northern edge of the Port Project properties within the proposed project area, but on property to be retained by TVA. The wetland is associated with the floodplain of an unnamed tributary. Dominant vegetation includes: bald cypress, water oak, willow oak, sweetgum, possumhaw, sycamore, and river oaks.

The TVA Rapid Assessment Method (TVARAM) was used to categorize wetlands by their functions, sensitivity to disturbance, rarity, and ability to be replaced. Using TVARAM, wetlands may be classified into three categories. Category 1 wetlands are considered “limited quality waters” and represent degraded aquatic resources that have limited potential for restoration and such low functionality that lower standards for avoidance, minimization, and mitigation can be applied. Category 2 includes wetlands of moderate quality and wetlands that are degraded but could be restored. Avoidance and minimization are the first lines of mitigation for Category 2 wetlands. Category 3 generally includes wetlands of very high quality or of regional/statewide concern, such as wetlands that provide habitat for threatened or endangered species. The TVARAM determined that W001 is a Category 2 wetland.

3.5.2 Environmental Consequences

Wetlands are protected under Sections 404 of the CWA and are addressed in EO 11990. In order to conduct specific activities in wetlands, authorization under a Section 404 permit from the USACE may be required depending on the wetland’s size and hydrologic connectivity to a navigable waterway. EO 11990 requires all federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural

and beneficial values of wetlands in carrying out the agency's responsibilities. In accordance with TVA procedures for implementing EO 11990 in *Instruction IX, Environmental Review* (TVA 1983), TVA must also determine whether there is a practicable alternative that will avoid affecting wetlands.

Alternative A

Under Alternative A, future industrial\commercial facilities could be constructed and operated. Future development would continue to be governed under the Contract. Any development activities that could potentially affect wetlands onsite would be regulated under both state and federal wetland protection mechanisms. To avoid impacts to wetlands, TVA would structure site development such that the forested wetlands delineated for this project are avoided. Potential wetland impacts associated with Alternative A are expected to be minor and insignificant.

Alternative B

Under this alternative, since the 0.12 acre wetland is located on property to be retained by TVA, there would be no impact. A maximum of 0.12 acres of wetlands, located on property to be retained by TVA, could be impacted by future requests (Figure 3-1). Any future proposed impacts to the wetland would be evaluated by TVA in accordance with EO 11990 and appropriate permitting from USACE. Therefore, any future potential wetland impacts are expected to be minor and insignificant.

3.6 Cultural and Historic Resources

Cultural resources include, but are not limited to, prehistoric and historic archaeological sites, historic structures, and historic sites at which important events occurred. Cultural resources are finite, non-renewable, and often fragile. They are frequently threatened by industrial, commercial, and residential development, as well as construction of roads and other infrastructure. TVA is mandated by the National Historic Preservation Act of 1966 (NHPA) to protect significant cultural resources (i.e., archaeological sites and historic structures) located on TVA lands or such resources that would be affected by TVA undertakings. The NHPA addresses the preservation of "historic properties," which is defined under the Act as any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Two broad categories of cultural resources are archaeological resources and historic architecture. Some examples of archaeological resources are earthworks, weapons and projectiles, human remains, rock carvings, and remains of subsurface structures such as domestic fire pits. Historic architecture consists of standing structures that are usually at least 50 years old. Consistent with Section 106 of NHPA, such structures, as well as archaeological resources, must meet certain criteria to qualify for inclusion on the NRHP.



Figure 3-1. Wetlands within the undeveloped areas of Yellow Creek Port, Tishomingo County, Mississippi

3.6.1 Affected Environment

The area of potential effect (APE) for this project is the 174 acres TVA is proposing to dispose of. The majority of the 174 acres were previously subjected to archaeological surveys from various previous YCPA and TVA land planning actions. Marshall (1971) conducted a survey of a portion of the YCPA and associated railway spur. The survey identified three sites 22Ts530, 22Ts531, and 22Ts532. Thorne (1983) conducted a reconnaissance survey of a portion of the tract. The survey failed to detect sites 22Ts531 and 22Ts532. A more recent survey by Johnson (2006) also failed to relocate sites 22Ts531 and 22Ts532. Site 22Ts530 was located at the current site of the Yellow Creek State Docks. The survey identified four new sites (22Ts1529, 22Ts1530, 22Ts1531, and 22Ts1532). Site 22Ts1532 was recorded as being an inundated site identified along the exposed shoreline. Exposed portions of the site were determined to be ineligible for NRHP listing. Thorne (n.d.) conducted additional testing at sites 22Ts1529, 22Ts1530 and 22Ts1531. Site 22Ts1531 had been destroyed through sheet erosion and plowing. Sites 22Ts1529 and 22Ts1530 were recommended for avoidance. A portion of the APE was also surveyed during a large scale survey of TVA-fee owned lands on Pickwick Reservoir (Meyer 1995). One additional site 22Ts1564, a highly disturbed lithic scatter, was identified as a result of the survey. The site was determined ineligible for the NRHP.

A portion of the shoreline within the APE was also recently surveyed as part of TVA's Reservoir Operation Compliance Project and two sites were identified (22Ts1619 and 22Ts1615)(Gage and Herrmann 2009). 22Ts1619 consists of moderate density lithic scatter with intact midden deposits identified within the shoreline under the Yellow Creek State Port. More than 5.6 feet of recent fill caps a midden exposed at the beach elevation. Barge loading facilities lie to the east and west for the exposed portion of the midden. The western portion is rip-rapped and eastern portion is under a concrete dock. Gage and Herrmann (2009) suggest that the site is likely a part of 22Ts530 that was not subject to deep testing. Based on the depth of deposits and the presence of intact features the site's eligibility for inclusion in the NRHP was considered undetermined. Site 22Ts1615 consists of a small, light to moderate density, lithic scatter located on an exposed chert gravel bar bounded by shale. The site was determined ineligible for the NRHP. Table 3-2 summarizes the sites previously identified within Port Project. While the majority of the current APE has been previously surveyed as documented in these various reports, approximately 21.4 acres (XYECR-11E Parcel 3) has not yet been surveyed. The State currently holds a permanent industrial easement issued in 1974 over this parcel of land. Under the permanent easement, TVA does not require its approval for the State to enter into agreements (e.g., leases, easements) or to conduct activities on this property. A portion of this area has been previously disturbed by the construction of an industry.

Table 3-2 Listed Cultural Sites Identified in the Project Area

Sites	Eligibility	Status
22Ts530	Undetermined	Upper portion destroyed/possibly associated with 22Ts1619
22Ts531	Undetermined	Failed to relocate
22Ts532	Undetermined	Failed to relocate
22Ts1529	Potentially eligible	Retained by TVA
22Ts1530	Potentially eligible	Retained by TVA
22Ts1531	Not eligible	No longer extant
22ST1532	Undetermined	Inundated/exposed portion ineligible
22Ts1564	Not eligible	No further work
22Ts1619	Potentially eligible	Conservation deed covenant
22Ts1615	Not eligible	No further work

3.6.2 Environmental Consequences

Alternative A

Under the No Action Alternative, TVA would retain ownership of the subject properties, TVA would not abandon the railroad spur and the Contract would remain in effect. Future actions would be governed by the Contract. Established encumbrances and easements unrelated to the No Action Alternative allow for actions on these properties. If these lands were to be developed or otherwise altered, the changes would be unrelated the TVA decision to adopt the No Action Alternative.

Three eligible sites were identified within the study area. Sites 22Ts1529 and 22Ts1530 would be retained by TVA no matter the alternative. At this time no additional ground disturbance is proposed on the Yellow Creek State Port parcel (XYEcr-4) where 22Ts1619 is located. However, future non-TVA development could occur which could potentially effect resources that may be eligible for the NRHP. A portion of XYEcr-1IE Parcel 3 (21.4 acres) has not yet been surveyed. The State currently holds a permeant industrial easement issued in 1974 over this parcel of land. Under the permanent easement, the State does not require TVA approval to enter into agreements (e.g., leases, easements) or to conduct activities on this property. MDA has no current plans for any further construction on this property. However, MDA could choose to develop this property and cultural resources could be impacted. Overall, if development occurs under the No Action Alternative, cultural resources may be affected but not by any TVA undertakings.

Alternative B

Three eligible sites were identified within the study area. Sites 22Ts1529 and 22Ts1530 would be retained by TVA. At this time no additional ground disturbance is proposed on the Yellow Creek State Port parcel (XYEcr-4) where 22Ts1619 is located. However, to avoid any future potential effects to resources that may be eligible for the NRHP, TVA proposes to place a deed convenient on Tract XYEcr-4 stipulating that any construction below the 5.6 ft fill zone would require a Section 106 review. With this deed covenant in place, TVA finds that site 22Ts1619 would not be affected by this undertaking.

Approximately 21.4 acres of XYEcr-1IE Parcel 3 has not yet been surveyed. The State currently holds a permeant industrial easement issued in 1974 over this parcel of land. Under the permanent easement, the State does not require TVA approval to enter into

agreements (e.g., leases, easements) or to conduct activities on this property. A portion of this area has been previously disturbed by the construction of an industry. MDA has no current plans for any further construction on this property. As such, TVA will place a restriction in the deed conveying XYECCR-11E Parcel 3 to MDA that prohibits any land-disturbing from being conducted on this property without prior written approval from TVA. At the time a request is received for such approval, TVA will conduct a Section 106 review to assess the impact of any proposed land-disturbing activities on historic properties located under XYECCR-11E Parcel 3. In the interim, the deed restriction will ensure that historic properties are not affected. In a letter dated January 22, 2016, the Mississippi State Historic Preservation Officer concurred with TVA's findings of no effect to historic properties. Pursuant to 36 CFR Part 800.3(f) (2), TVA also consulted with federally recognized Indian tribes regarding properties that may have religious and cultural significance to their tribe and eligible for the National Register of Historic Places. TVA received one response from the Choctaw Nation of Oklahoma with no objections to the undertaking.

3.7 Floodplains

3.7.1 Affected Environment

A floodplain is the relatively level land area along a stream or river that is subject to periodic flooding. The area subject to a one-percent chance of flooding in any given year is normally called the 100-year floodplain. It is necessary to evaluate development in the 100-year floodplain to ensure that the project is consistent with the requirements of EO 11988. The property proposed for disposal lies adjacent to the Tennessee-Tombigbee Waterway (Pickwick Reservoir) between waterway miles 447.3 and 448.3, right descending bank. The 100-year flood and TVA Flood Risk Profile/500-year flood elevations would be 419.5 and 419.6 ft above mean sea level (msl), respectively. Additionally, Tanyard Branch flows into Pickwick Reservoir on the northwest side of the industrial park. Flood elevations on Tanyard Branch would be controlled by water elevations on Pickwick Reservoir; therefore, the 100- and 500-year flood elevations would be 419.5 and 419.6 ft msl, respectively. The spur railroad into the industrial park crosses Lard Branch at about Lard Branch mile 0.8. The floodplain of Lard Branch is shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Tishomingo County, Mississippi, Panel 28141C0030C, published December 17, 2010, as Zone A. In Zone A floodplains, flood elevations are estimated rather than computed; therefore, no computed flood elevations are available for Lard Branch. Based upon interpretation of topographic maps and the FIRM, the approximate elevation of the 100-year flood on Lard Branch would be about elevation 440 msl.

3.7.2 Environmental Consequences

As a federal agency, TVA is subject to the requirements of EO 11988, Floodplain Management. The objective of EO 11988 is "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative" (United States Water Resources Council 1978). The EO is not intended to prohibit floodplain development in all cases, but rather to create a consistent government policy against such development under most circumstances. The EO requires that agencies avoid the 100-year floodplain unless there is no practicable alternative.

Alternative A

Under the No Action Alternative, any activities proposed within the floodplain would continue to require TVA's approval under Section 26a of the TVA Act. Therefore, there

would be no direct, indirect, or cumulative impacts to floodplains because there would be no physical changes to the current conditions found within the floodplains.

Alternative B

Under the Action Alternative, TVA would abandon its interest in the railroad spur leading into the Port Project, transfer approximately 174 acres of Port Project property to the State, issue 26a approval for existing Port facilities, and amend and terminate the Contract.

Abandon Easement over Railroad Spur Leading into YCP

A portion of the approximate 213 acres containing the railroad spur and right-of-way beyond the boundary of the YCP (Parcel YEER-1RR, S.1X) is located within the 100-year floodplain of Lard Branch. During construction, fill was placed in some locations along the rail spur in order to maintain the appropriate track grade. The amount of fill placed to grade the railroad track is unknown and not shown on topographic maps. Based upon interpretation of topographic maps and aerial imagery, the elevation of the rail spur as it crosses Lard Branch appears to be approximately elevation 480, which is well above the estimated 100-year flood elevation of 440 msl. Therefore, the track is located well above the floodplain of Lard Branch, which would be consistent with EO 11988. There are no plans at this time to construct any new facilities, fill, structures, or buildings within the easement area. Therefore, the abandonment of the easement over the railroad spur leading into the Port Project would have no impact on floodplains.

Transfer 174 acres to State of Mississippi

The undeveloped parcels within the Port Project, as well as the parcels containing the Inland Port, highway, portion of the railroad within the Port Project, and other industrial sites contain floodplains on at least a portion of the parcels. The transfer of approximately 174 acres consists of five distinct groups of properties: undeveloped property, the Inland Port, property encumbered by industrial easements, property encumbered by highway easement, and railroad right-of-way. No new facilities or actions are proposed at this time over any of the almost 174 acres.

Undeveloped Property (Parcel XYEER-3)

Parcel XYEER-3 consists of about 55 mainly wooded acres of land adjacent to Pickwick Reservoir. TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction. TVA would retain the fee land below the 423-contour. Potential development subsequent to the transfer of this parcel would have no impact on floodplains. No new facilities are proposed at this time. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction. TVA would retain the right to temporarily and intermittently flood the parcel to the elevation 425 and would not be liable for damages resulting from flooding structures at or below this elevation.

Inland Port (Parcel XYEER-4)

Parcel XYEER-4 consists of about 18 acres of land adjacent to Pickwick Reservoir. The State of Mississippi operates the Port under the Contract. In the early 1970's, a large and unknown amount of fill was placed on the parcel to construct the Port. The FIRM shows that portions of two buildings, the barge dock, and the mooring cells of the barge terminal are located within the 100-year floodplain. However, due to the amount of fill that was placed, the buildings associated with the Port are elevated above 423 ft and are consistent with EO 11988.

The barge dock and the mooring cells are considered to be repetitive actions in the floodplain that should result in minor impacts, which are consistent with EO 11988.

TVA would transfer this property down to the 418-contour, which would be within the 100-year floodplain, within the Flood Control Storage Zone and within the limits of Section 26a jurisdiction. TVA would retain the fee land below the 418-contour. No new facilities are proposed at this time. Future facilities, structures (including fill), improvements or buildings proposed below elevation 419.6 would require written approval from TVA prior to construction (i.e., 26a approval). Additionally, TVA would retain the right to temporarily and intermittently flood the parcel to the elevation 425 and would not be liable for damages resulting from flooding structures at or below this elevation.

To minimize potential adverse floodplain impacts, a covenant would be included in any Section 26a approval stating that an electrical disconnect would be provided above elevation 419.6 that is accessible during flooding. The following transfer covenants would apply to this parcel:

1. Any future facilities or equipment subject to flood damage will be located above or floodproofed to elevation 421.6 (Flood Risk Profile elevation plus 2 vertical feet).
2. Any future development proposed within the limits of the 100-year floodplain, elevation 419.5, will require written approval from TVA prior to construction to ensure it is consistent with the requirements of EO 11988.
3. All future development will require written approval from TVA prior to construction to ensure it is consistent with the requirements of the TVA Flood Control Storage Loss Guideline. The Flood Control Storage Loss Guideline applies from elevations 408.0 to 419.6 msl. The TVA power storage loss zone applies from elevations 408.0 to 414.0 msl.
4. TVA will retain the right to temporarily and intermittently flood below elevation 425, and will not be liable for damages resulting from flooding.
5. Future facilities, equipment, structures (including fill), improvements or buildings proposed below the TVA Flood Risk Profile/500-year flood elevation 419.6 will require written approval from TVA prior to construction.

Property Encumbered by Industrial Easements

XYECR-11E-2 - State of Mississippi - Ferrous South

As depicted on Tishomingo County FIRM Panel 28141C0030C, portions of parcel XYECR-11E-2 are located within 100-year floodplains. However, a FEMA Letter of Map Amendment dated November 5, 2013, states that the lowest lot elevation on this parcel is 421.2 feet. In this case, NGVD 1929 and NAVD 1988 elevations are identical when reported to the nearest tenth of a foot; therefore facilities, structures and improvements on this parcel are located above the 100-year flood elevation 419.5, which is consistent with EO 11988.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact on floodplains. TVA would retain the fee land below the 423-contour. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction. No new facilities are proposed at this time. TVA would retain the right to flood the tract as described in the permanent easement, and would not be liable for damages resulting from flooding.

XYECR-1IE-3 - State of Mississippi - Ergon

According to Tishomingo County FIRM Panel 28141C0030C, portions of this parcel contain floodplains; however, the facilities within the floodplain appear to be a water-use facility and a fence between the large storage tanks and the reservoir. These facilities are subject to the permanent easement for industrial facilities over this parcel.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact on floodplains. TVA would retain the fee land below the 423-contour. TVA would continue to retain the rights to flood the tract as described in the permanent easement. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction. No new facilities are proposed at this time.

XYECR-1IE-4 - State of Mississippi

According to Tishomingo County FIRM Panel 28141C0030C, portions of this parcel contain floodplains; however, the facilities are located outside the 100-year floodplain. Development is subject to the existing permanent easement for industrial facilities over this parcel.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact on floodplains. TVA would retain the fee land below the 423-contour. TVA would continue to retain the rights to flood the tract as described in the permanent easement. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction. No new facilities are proposed at this time.

XYECR-5E - Spry Marine

According to Tishomingo County FIRM Panel 28141C0030C, portions of this parcel contain floodplains. The facilities within the 100-year floodplain consist of a three-slip transient dock, a boat lift, and a parking area, all of which are considered to be repetitive actions within the 100-year floodplain that should result in minor impacts. Between October 1995 and October 2015, facilities on this parcel were subject to a term easement for industrial facilities. The property is currently under a license agreement.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact on floodplains. TVA would retain the fee land below the 423-contour. TVA would to retain the rights to flood the tract to elevation 425 and would not be liable for damages from flooding. Future facilities, structures (including fill), improvements or buildings in place or proposed below elevation 423 would require written approval from TVA. No new facilities are proposed at this time.

Property Encumbered by Highway Easements*XTYECR-1H*

According to Tishomingo County FIRM Panel 28141C0030C, portions of this parcel contain floodplains. The roadway is depicted as being within the floodplain; however, the road is located adjacent to Parcel XYECR-1IE-2, which was documented in a LOMA mentioned

previously as no lower than elevation 421.2 ft msl. It is very likely that the elevation of the roadway is also at about elevation 421. Development on this parcel is subject to the existing permanent easement for road rights-of-way. Should the road be located within the 100-year floodplain, roads are considered to be repetitive actions within the 100-year floodplain that should result in minor impacts.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact on floodplains. TVA would retain the fee land below the 423-contour. TVA would continue to retain the rights to flood the tract as described in the permanent easement and would not be liable for damages resulting from flooding. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction. No new facilities are proposed at this time.

XTYECR-9H

Parcel XTYCER-9H is located outside 100-year floodplains, which is consistent with EO 11988. Development on this parcel is subject to the existing permanent easement for road rights-of-way.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact on floodplains. TVA would retain the fee land below the 423-contour. TVA would continue to retain the rights to flood the tract as described in the permanent easement and would not be liable for damages resulting from flooding. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction. No new facilities are proposed at this time.

Railroad Right-of-Way

According to panels 25 and 30 of the Tishomingo County, Mississippi, FIRM, the railroad spur and right-of-way crosses 100-year floodplains in two places: the Inland Port in the northern part of the industrial park and a small embayment between Lard Branch and the Inland Port.

According to Panel 30 of the Tishomingo County, Mississippi, FIRM, the railroad crosses a small embayment of Pickwick Reservoir. The 100-year flood elevation at this location would be elevation 419.5. Again, topographic maps do not indicate the elevation of the railroad; however, it is reasonable to assume that the elevation of the track is at least elevation 420, which would be consistent with EO 11988.

The northernmost 0.3 mile of the rail spur is located within the Inland Port, within the floodplain of Smith Branch, which was formerly an embayment of Pickwick Reservoir. A considerable and unknown amount of fill was placed within that area when the Inland Port was constructed. As in the case of the rail crossing of the small embayment between the Inland Port and Lard Branch, it is reasonable to assume the elevation of the track is at least elevation 420, which would be consistent with EO 11988.

TVA would transfer this property down to the 423-contour, which would be above the 100-year flood elevation and beyond the limit of Section 26a jurisdiction; therefore, potential development on this parcel subsequent to the transfer of this parcel would have no impact

on floodplains. TVA would retain the fee land below the 423-contour. TVA would retain the rights to temporarily and intermittently flood to elevation 425 and would not be liable for damages resulting from flooding. Future facilities, structures (including fill), improvements or buildings proposed below elevation 423 would require written approval from TVA prior to construction, and would be limited to railroad infrastructure. No new facilities are proposed at this time.

Amending and terminating the Contract would have no impact on floodplains. The proposed abandonment of 213 acres of railroad easement leading into the Port Project, transfer of approximately 174 acres of TVA land, and 26a approval for existing port facilities, would have no significant impact on floodplains upon implementation of 26a Permit conditions, and transfer document covenants (if needed) described above. As previously stated, any future activities proposed in the floodplain would continue to require TVA approval under Section 26a of the TVA Act.

3.8 Land Use

3.8.1 Affected Environment

The adjoining property to the Port Project which constitutes the industrial park is located in a rural area of Tishomingo County, situated near Tenn-Tom Mile Marker 448 along the west bank of Yellow Creek. The approximately 307-acre site is bisected by County Road 351 and a railroad both which serve the barge terminal and resident industries. It is partially bound to the east by land that borders Pickwick Reservoir. The Port Project is a successfully operating shipping port for the existing industrial facilities and region. TVA prefers that the Port Project and its facilities continue to operate and for the remaining project land to be utilized for industrial use as it was originally planned.

3.8.2 Environmental Consequences

Under either Alternative A or Alternative B, future industrial\commercial facilities could be constructed and operated. In addition, parking, access, water supply, sanitary facilities, and electrical amenities would be necessary to support any industrial facility. There would be no expected change in the existing land use of any of the Port Project properties as a result of the disposal of the 174 acres of land by TVA or in the reasonably foreseeable future for the entire project area of reservoir properties currently allocated for industrial use. Impacts would be similar to those already occurring or likely to occur; thus, any direct or indirect impacts to land use resulting from development of the Port Project properties under either Alternative would be insignificant.

3.9 Noise

3.9.1 Affected Environment

Sound is most commonly measured in decibels on the A-weighted decibel (dBA), which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal and state agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Noise, defined herein as undesirable sound, is regulated by the Noise Control Act of 1972. Although the Noise Control Act gives the U.S. Environmental Protection Act authority to prepare guidelines for acceptable levels of ambient noise, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards.

U.S. Environmental Protection Act guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dBA DNL are “normally unacceptable” for noise-sensitive land uses, such as residences, schools, and hospitals.

Any proposed industrial development at the Port Project would occur in an industrial area where noise impacts are already or expect to occur. Although Pickwick Reservoir is adjacent to the subject property, there are no other sensitive noise receptors in the vicinity of the subject property. The future construction and operation of new industrial manufacturing facilities would generate a temporary increase in noise typical of other industrial sites in the immediate area.

3.9.2 Environmental Consequences

Noise pollution (or environmental noise) is displeasing human-, animal- or machine-created sound that disrupts the activity or balance of human or animal life. The source of most human-produced outdoor noise worldwide is transportation systems, stationary sources, and construction equipment and operations (Cowan 1994).

Industrial construction and industrial plant operations are processes that produce noise. Typical noise sources related to industrial development and operation include construction activities, equipment operation, and vehicular traffic. The amount of noise at a particular location can be reduced by the use of strategically placed physical barriers, vegetation screens, separation of the source and the receptor by distance, and enclosing the noise source. The noise effects on a particular receptor are a function of the location (i.e., perspective) of the noise source, both of which can be subject to change. The project area is located in a rural environmental with low number of receptors.

Under either Alternative A or Alternative B, future industrial/commercial facilities could be constructed and operated. In addition, parking, access, water supply, sanitary facilities, and electrical amenities would be necessary to support any industrial facility. Operation of future facilities would likely be an increase in noise associated with the delivery of materials by trucks and the operation of machinery on industrial sites, but these impacts would be infrequent and minor. Noise generated from the operation of the facilities would be similar to that now occurring and is not expected to measurably impact areas outside of the industrial park, including adjacent areas of the Pickwick Reservoir.

Heavy construction equipment needed for development would include (but may not be limited to) stationary equipment (generators, and compressors), bulldozers, backhoes, excavators, water trucks, and articulated dump trucks. Noise from construction would be temporary or intermittent and would cease after the completion of construction.

Noise level increases of 5 to 20 dBA DNL are conceivable during industrial operations, depending on the type of industrial development ultimately locating on the site. Any future industrial developments would need to comply with operational permits, as to minimize its impact on the local community. If operational noise results in complaints, the industrial facility could implement noise abatement measures including construction of buffers (fence/wall or planting of trees) between incompatible land uses (i.e., light industrial and residential) and/or add acoustically absorbent material to the facility.

Future construction activities would cause minor, temporary insignificant noise impacts because these activities would be short in duration and would likely occur during daylight hours. Due to the nature of the site, and the potential for noise abatement, minor direct,

indirect, and cumulative impacts during the operation of potential industrial developments are anticipated under either Alternative.

3.10 Socioeconomics and Environmental Justice

3.10.1 Affected Environment

According to 2014 U.S. Census Bureau estimates, the Tishomingo County population was 19,420 persons. In 2010, the population density was 46.2 people per square mile with about 17.6 percent living below the poverty level from 2009-2013. Income data from the 2013 census indicated that the median household income was \$32,592, and the per capita income was \$18,338.

In 2015, the civilian labor force of Tishomingo County was 7,780. Of these, 440 individuals were unemployed (Mississippi Department of Employment Security 2015). The Tishomingo County unemployment rate rank is 27 of the 82 counties in Mississippi. The Labor Market Data for Mississippi reports that the unemployment rate for Tishomingo County is 5.7 percent, which is below the state level of 6.0 percent and slightly above the national level of 5.0 percent, respectively (Mississippi Department of Employment Security 2015).

3.10.2 Environmental Consequences

Under either Alternative A or Alternative B, minor beneficial impacts would eventually occur during construction and operation of future potential facilities because of the addition of new jobs. Some of the employees would be from the local labor force, some would commute from nearby areas, and others would likely be transferred or hired as new employees. There would be minimal impact on housing construction and occupancy. There would be a slight increase in local tax revenues and some local establishments (restaurants and convenience stores) could experience marginal increases in profit.

3.11 Transportation

3.11.1 Affected Environment

The approximately 307-acre site is bisected by County Road 351 and a railroad both which serve the barge terminal and resident industries. The Port Project is served by roadway, railway, and waterway modes of transportation. Tennessee Highway 57 and Mississippi State Routes (SR) 25 and SR 370 provide truck and automobile access to the Port Project area. These state highways are high quality, rural roadways with a shoulder. During any construction of new or expanded facilities additional workers, including deliveries of construction materials, would use the existing roads to the any construction site. The future facilities would receive raw materials and ship finished products via barge, truck, and rail. The barges would travel to the existing port, and the rail would travel on existing rail lines.

3.11.2 Environmental Consequences

Under either Alternative A or Alternative B, slight increases to road, rail, and barge use would occur along the SR 25 corridor as well as the other transportation facilities in the vicinity of the Port Project. These traffic additions are not expected to overburden the existing road infrastructure or create considerable traffic congestion in the vicinity of the subject property. The roadways, railways, and barge terminal in the Port Project area are fully capable of absorbing additional traffic. Therefore, adoption of the either alternative would not result in major impacts to roadway, waterway or railway transportation.

3.12 Visual Resources

3.12.1 Affected Environment

The physical, biological, and cultural features of an area combine to make the visual landscape character both identifiable and unique. Scenic integrity indicates the degree of unity or wholeness of the visual character. Scenic attractiveness is the evaluation of outstanding or unique natural features, scenic variety, seasonal change, and strategic location. Where and how the landscape is viewed affect the more subjective perceptions of its aesthetic quality and sense of place.

Views of a landscape are described in terms of what is seen in foreground, middleground, and background distances. In the foreground, an area within 0.5 mile of the observer, details of objects are easily distinguished in the landscape. In the middleground, normally between 1 and 4 miles from the observer, objects may be distinguishable but their details are weak and they tend to merge into larger patterns. Details and colors of objects in the background, the distant part of the landscape, are not normally discernible unless they are especially large and standing alone. The impressions of an area's visual character can have a substantial influence on how it is appreciated, protected, and used. The general landscape character of the study area is described in this section.

The landscape character of Pickwick Reservoir has changed since its impoundment in 1938. The study area has also changed since the 1970s, the time when the Yellow Creek Port Authority was established with the gradual replacement of pine and hardwoods forest and openings with industrial and transportation structures and activity sites. The area is sparsely populated, but there are two houses adjacent to the project area. There is a small residential area that adjoins TVA near Parcel 2 of XYECR11E and a house that adjoins Parcel 3. Within the immediate vicinity of the area, the landscape character is distinctly industrial and commercial. The scenic attractiveness of the industrial park area is common to minimal, and the scenic integrity is low.

3.12.2 Environmental Consequences

Under either Alternative A or Alternative B, future industrial facilities could be constructed and operated. In addition, parking, access, water supply, sanitary facilities, and electrical amenities would be necessary to support any industrial facility. Industrial development would result in effects to existing scenic resources within the project area. Removal of existing trees and site grading would affect the scenic integrity of portions of the proposed property having a rural or naturally appearing landscape character.

Under either Alternative, there would be a potential for minor visual change in the landscape because of future industrial development. Based on criteria developed by the U.S. Bureau of Land Management (1986) to rate scenic quality, overall scenic values of the project area are low because of the relatively low relief, lack of significant visual features, and the similarity to surrounding areas. There may also be some moderate visual impacts during construction and operation of industrial facilities.

Light can cause pollution when it becomes a nuisance to adjacent properties. Light pollution/light trespass is best described as artificial light that is allowed to illuminate, or intrude upon, areas not intended to be lit. There are options available for future development to reduce the impacts of glare, light trespass and light pollution. Some of these options include designing outdoor lighting fixtures to be shielded, aimed, located and

maintained to prevent light trespass onto adjacent properties and roadways; have cut-off fixtures; or light fixture poles in parking lots that do not exceed a certain height.

The scenic nature of the project area would be impacted by the construction of industrial facilities, including parking lots, buildings and other structures. Industrial facilities tend to incorporate natural elements and landscape in its developments. Even though most of the area could be disturbed during construction, disturbed areas would be graded and reseeded with native or nonnative, noninvasive species. Therefore, there would be minor adverse direct, indirect and cumulative visual impacts anticipated from the implementation of either Alternative.

3.13 Water Quality

3.13.1 Affected Environment

The Tennessee River in Mississippi from the Alabama state line to the Tennessee state line is designated as public water supply. The Mississippi Department of Environmental Quality (MDEQ) is responsible for administering the state's storm water management program through its Office of Pollution Control. Mississippi's storm water program requires that storm water be treated to the maximum extent practicable. Numeric treatment requirements specific to storm water have not been established at the state level, but water quality parameters are established on a site-by-site basis when the risk of contamination is present. MDEQ establishes permitting requirements for construction sites disturbing more than 1 acre. Prior to construction, any new development would be required to obtain a Large Construction Storm Water General Permit for Land Disturbing Activities of Five or More Acres from MDEQ.

Potable water service could be extended to new facilities from existing systems of the Short Coleman Park Water Association. Sanitary sewer could be disposed of via on-site treatment and disposal.

3.13.2 Environmental Consequences

Under either Alternative A or Alternative B, future industrial facilities could be constructed and operated. These new facilities would facilitate soil disturbances associated with potential site development and construction of access roads. Soil disturbances associated with construction activities can potentially result in adverse water quality impacts, which could have direct and indirect impacts to aquatic biota within watercourses in the project area. Soil erosion and sedimentation can increase turbidity (water cloudiness) and threaten aquatic life. A December 2015 field survey of the proposed property documented 10 ephemeral streams (wet-weather conveyances) and no perennial or intermittent streams. Any future activities within or along these ephemeral streams would be pursuant to necessary state and federal reviews. Also, standard best management practices to minimize disturbance of riparian areas and subsequent erosion and sedimentation that could be carried to streams would be implemented as a result of these reviews.

In addition to construction activities, improperly operated wastewater treatment systems (septic tanks) and runoff from lawn fertilizer applications could increase unhealthy nutrient additions to the adjacent reservoir. Sanitary waste matter from inadequate or improperly installed septic systems can result in discharges of fecal coliform as well as changes in water chemistry, which can threaten aquatic life. However, with the implementation of prevention measures, controls, and best management practices as described in MDEQ 2005, potential impacts to water quality would be minor.

3.14 Cumulative Impacts

Cumulative effects of the Proposed Action Alternative would be limited to the project site and its surroundings. It is reasonable to assume that eventually any useful remaining property would be used for industrial/commercial facilities as per the original project goals of the Port Project. TVA's decision to adopt the Proposed Action Alternative would not result in a significant change from current environmental conditions. TVA has addressed the cumulative effects for each resource that could be affected cumulatively by the future construction and operation of light industrial facilities in the respective sections.

3.15 Unavoidable Adverse Environmental Impacts

The proposed activities could cause some unavoidable adverse environmental effects. Specifically, construction activities would generate fugitive dust. The future development of the project area would increase noise and traffic in the general area and may permanently reduce wildlife habitat. With the application of appropriate and standard environmental safeguards such as use of best management practices, these unavoidable adverse effects are expected to be minor.

3.16 Relationship of Short-Term Uses and Long-Term Productivity

Short-term uses are those that generally occur on a year-to-year basis. Examples are wildlife use of forage, timber management, recreation, and uses of water resources. Long-term productivity is the capability of the land to provide resources, both market and nonmarket, for future generations.

In this context, long-term impacts to site productivity would be those that last beyond the life of the project. The proposed action would affect long-term productivity by developing light industrial facilities within the project area. These actions would remove vegetation and cover portions of the site with impervious surfaces. Portions of the site would likely remain vegetated and productive. Development of the project area would cause a long-term loss of forest productivity and wildlife habitat. But over time, these would be relatively minor considering the availability of similar land in the area.

3.17 Irreversible and Irretrievable Commitments of Resources

An irreversible or irretrievable commitment of resources would occur when resources would be consumed, committed, or lost because of the project. The commitment of resources would be irreversible if the project started a process (chemical, biological, or physical) that could not be stopped. Similarly, commitment of a resource would be considered irretrievable when the project would directly eliminate the resource, its productivity, or its utility for the life of the project and possibly beyond.

Once the land is made available, it is expected that it would be developed. Construction and operation activities on this land would result in an irretrievable and irreversible commitment of natural and physical resources. The adoption of Alternative B would involve irreversible commitment of fuel, energy, and building materials. The amount of these materials would depend on the nature and extent of development. Light industrial development tends to use less raw and manufactured materials and incorporates more conservation of renewable natural resources on the site.

CHAPTER 4 – LIST OF PREPARERS

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CHAPTER 5 – ENVIRONMENTAL ASSESSMENT RECIPIENTS

5.1 Federal Agencies

U.S. Fish and Wildlife, Jackson Office
U.S. Army Corps of Engineers, Nashville Office

5.2 Federally Recognized Tribes

Alabama-Coushatta Tribe of Texas
Choctaw Nation of Oklahoma
Jena Band of Choctaw Indians
The Chickasaw Nation

5.3 State Agencies

Mississippi Development Authority
Mississippi Department of Environmental Quality
Mississippi State Historic Preservation Officer
Yellow Creek Port
Tombigbee River Valley Water Management District

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Appendix A – Threatened and Endangered Species Lists

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Table 1. All plant species of conservation concern previously reported from within a five mile vicinity of the Project Area

Common Name	Scientific Name	Federal Status	State Status (Rank)
Black Bugbane	<i>Actaea racemosa</i>	-	SLNS(S1S2)
Single-head Pussytoes	<i>Antennaria solitaria</i>	-	SLNS(S3S4)
Puttyroot	<i>Aplectrum hymale</i>	-	SLNS(1)
Wild Columbine	<i>Aquilegia canadensis</i>	-	SLNS(S1S2)
Sicklepod	<i>Arabis canadensis</i>	-	SLNS(S2S3)
Canada Wild-ginger	<i>Asarum canadense</i>	-	SLNS(S2S3)
Black-stem Spleenwort	<i>Asplenium resiliens</i>	-	SLNS(S1)
Walking Fern	<i>Asplenium rhizophyllum</i>	-	SLNS(S1S2)
Canadian Milkvetch	<i>Astragalus canadensis</i>	-	SLNS(S2)
Wild Hyacinth	<i>Camassia scilloides</i>	-	SLNS(S2S3)
Slender Toothwort	<i>Cardamine angustata</i>	-	SLNS(S2S3)
Two-leaf Toothwort	<i>Cardamine diphylla</i>	-	SLNS(S1S2)
Sedge	<i>Carex jamesii</i>	-	SLNS(S3S4)
Sedge	<i>Carex picta</i>	-	SLNS(S3S4)
Sedge	<i>Carex prasina</i>	-	SLNS(S1)
Sedge	<i>Carex stricta</i>	-	SLNS(S2)
Swamp Hickory	<i>Carya glabra</i> var. <i>hirsuta</i>	-	SLNS(S2S3)
Big Shellbark Hickory	<i>Carya laciniosa</i>	-	SLNS(S2S3)
Hairy Lipfern	<i>Cheilanthes lanosa</i>	-	SLNS(S2)
White Turtlehead	<i>Chelone glabra</i>	-	SLNS(S3)
Spotted Wintergreen	<i>Chimaphila maculata</i>	-	SLNS(S2)
Yellowwood	<i>Cladrastis kentukea</i>	-	SLNS(S2)
Dwarf Larkspur	<i>Delphinium tricorne</i>	-	SLNS(S2)
Silvery Glade Fern	<i>Deparia acrostichoides</i>	-	SLNS(S1S2)
Dutchman's Breeches	<i>Dicentra cucullaria</i>	-	SLNS(S1)
Eastern Leatherwood	<i>Dirca palustris</i>	-	SLNS(S2)
Shooting Star	<i>Dodecatheon meadia</i>	-	SLNS(S2)
Yellow Trout-lily	<i>Erythronium rostratum</i>	-	SLNS(S1S2)
Wahoo	<i>Euonymus atropurpureus</i>	-	SLNS(S2S3)
Blue Ash	<i>Fraxinus quadrangulata</i>	-	SLNS(S2)
Kentucky Coffee-tree	<i>Gymnocladus dioicus</i>	-	SLNS(S2)
Giant Alumroot	<i>Heuchera villosa</i> var. <i>macrorrhiza</i>	-	SLNS(S1)
Green Violet	<i>Hybanthus concolor</i>	-	SLNS(S2S3)
Waterleaf	<i>Hydrophyllum appendiculatum</i>	-	SLNS(S2?)
Largeleaf waterleaf	<i>Hydrophyllum macrophyllum</i>	-	SLNS(S1)
Lovage	<i>Ligusticum canadense</i>	-	SLNS(S1S2)
Turk's Cap Lily	<i>Lilium superbum</i>	-	SLNS(S3S4)
Woodrush	<i>Luzula acuminata</i>	-	SLNS(S3)
Virginia Bluebells	<i>Mertensia virginica</i>	-	SLNS(S1S2)
Muhly	<i>Muhlenbergia tenuiflora</i>	-	SLNS(S1S2)
Alabama Snow-wreath	<i>Neviusia alabamensis</i>	-	SLNS(S1)
Smoother Sweet-cicely	<i>Osmorhiza longistylis</i>	-	SLNS(S3)
Allegheny-spurge	<i>Pachysandra procumbens</i>	-	SLNS(S3)
American ginseng	<i>Panax quinquefolius</i>	-	SLNS(S3)
Purple Cliff-brake	<i>Pellaea atropurpurea</i>	-	SLNS(S1S2)
Perideridia	<i>Perideridia americana</i>	-	SLNS(S1S2)

Common Name	Scientific Name	Federal Status	State Status (Rank)
Phacelia	<i>Phacelia bipinnatifida</i>	-	SLNS(S1)
Streambank mock orange	<i>Philadelphus hirsutus</i>	-	SLNS(S1)
Virginia Pine	<i>Pinus virginiana</i>	-	SLNS(S2)
Crested Fringed Orchid	<i>Platanthera cristata</i>	-	SLNS(S3)
White Fringeless Orchid	<i>Platanthera integrilabia</i>	PT	SLNS(S1)
Greek Valerian	<i>Polemonium reptans</i>	-	SLNS(S2S3)
Carolina Willow	<i>Salix caroliniana</i>	-	SLNS(S3)
Stonecrop	<i>Sedum ternatum</i>	-	SLNS(S2)
Autumn Goldenrod	<i>Solidago sphacelata</i>	-	SLNS(S1S2)
American Bladdernut	<i>Staphylea trifolia</i>	-	SLNS(S3)
Giant Chickweed	<i>Stellaria pubera</i>	-	SLNS(S2S3)
Heart-leaved Foam-flower	<i>Tiarella cordifolia</i>	-	SLNS(S2)
Ernest's Spider-wort	<i>Tradescantia ernestiana</i>	-	SLNS(S1)
Carolina Tassel-rue	<i>Trautvetteria caroliniensis</i>	-	SLNS(S1)
Nodding Trillium	<i>Trillium flexipes</i>	-	SLNS(S1)

Source: TVA Natural Heritage Database, July 2015.

Status codes: **PT** = Proposed Threatened; **SLNS** = Listed by the state of Mississippi, but not assigned a status.
 Rank Codes: **S1** = Extremely rare and critically imperiled in the state with 5 or fewer occurrences, or very few remaining individuals, or because of some special condition where the species is particularly vulnerable to extirpation; **S2** = Very rare and imperiled within the state, 6 to 20 occurrences; **S3** = Rare or uncommon with 21 to 100 occurrences; **S4** = Apparently Secure; **S#S#** = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2).

Table 2 Listed Terrestrial Animals in the Vicinity of the Project Area¹

Common Name	Scientific Name	Federal Status	State Status ² (Rank ³)
Amphibians			
Mountain chorus frog	<i>Pseudacris brachyphona</i>	--	TRKD(S3)
Red salamander	<i>Pseudotriton ruber</i>	--	TRKD(S3)
Birds			
Bald eagle	<i>Haliaeetus leucocephalus</i>	DM	END(S2B)
Red-cockaded woodpecker ⁴	<i>Picoides borealis</i>	LE	END(S1)
Woodstork ⁵	<i>Mycteria Americana</i>	LT	THR(S2N)
Insects			
Mitchell's satyr ⁴	<i>Neonympha mitchellii</i>	LE	--
Reptiles			
Mole kingsnake	<i>Lampropeltis calligaster rhombomaculata</i>	--	TRKD(S3?)
Black kingsnake	<i>Lampropeltis getula nigra</i>	--	TRKD(S3)
Southern coal skink	<i>Plestiodon anthracinus pluvialis</i>	--	TRKD(S2S3)
Queen snake	<i>Regina septemvittata</i>	--	TRKD(S2S3)
Mammals			
Gray bat ⁶	<i>Myotis grisescens</i>	LE	END(S1)
Indiana bat ⁶	<i>Myotis sodalis</i>	LE	END(S1B)

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Northern long-eared bat ⁶	<i>Myotis septentrionalis</i>	LT	TRKD(S1N)
Oldfield mouse ⁷	<i>Peromyscus polionotus</i>	PS	TRKD(S2S3)

¹Source: TVA Regional Natural Heritage Database extracted 01/04/2016 and USFWS Ecological Conservation Online System (<http://ecos.fws.gov/ecos/home.action>), accessed 01/04/2016.

²**Federal status abbreviations:**DM = Delisted, recovered, and still being monitored; END = Endangered; LE = Listed Endangered; LT = Listed Threatened; PS = Partial Status; THR = Threatened; TRKD = Tracked.

³**State rank abbreviations:** S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S#N = rank of a non-breeding population; S#B = rank of a breeding population; S#? = Unranked: element is not yet ranked in the state.

⁴Federally listed species that has been reported from Tishomingo County, Mississippi, but not within three miles of the project area.

⁵Federally listed species whose range includes Tishomingo County, Mississippi. To date, no records of this species are known from this county.

⁶Federally listed species that has historically been reported from Tishomingo County, Mississippi. No records of this species have been documented from this county following the collapse of a known mine hibernaculum. The USFWS has determined that this species still has the potential to exist in this County.

⁷Several subspecies of oldfield mouse found in in the southeastern US (Alabama and Florida) are federally listed. Species of oldfield mouse found in Tishomingo County, Mississippi are not federally listed.

Table 3 Records of federal and state-listed aquatic animal species within the Little Yellow Creek-Yellow Creek (HUC 0603000511), and/or within Tishomingo County, MS, and a 10-mile radius of the proposed project.¹

Common Name	Scientific Name	Element Rank ²	Federal Status ³	State Status ³ (Rank) ⁴
FISHES				
Bandfin Darter	<i>Etheostoma zonistium</i>	E		TRKD (S2)
Bigeye Shiner	<i>Notropis boops</i>	E		END (S1)
Fantail Darter	<i>Etheostoma flabellare</i>	E		TRKD (S2)
Highfin Carpsucker	<i>Carpionodes velifer</i>	E		NMGT (S2S3)
Redline Darter	<i>Etheostoma rufilineatum</i>	E		TRKD (S2)
Rosefin Shiner	<i>Lythrurus fasciolaris</i>	E		TRKD (S2S3)
Rosyface Shiner	<i>Notropis micropteryx</i>	E		TRKD (S1)
Spotfin Shiner	<i>Cyprinella spiloptera</i>	E		TRKD (S2)
Steelcolor Shiner	<i>Cyprinella whipplei</i>	E		TRKD (S3)
Stripetail Darter	<i>Etheostoma kennicotti</i>	E		TRKD (S2)
Suckermouth Minnow	<i>Phenacobius mirabilis</i>	E		END (S1)
Tuscumbia Darter	<i>Etheostoma tuscumbia</i>	X		NMGT SX)
MUSSELS				

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Common Name	Scientific Name	Element Rank ²	Federal Status ³	State Status ³ (Rank) ⁴
Acornshell	<i>Epioblasma haysiana</i>	H		EXTI (SH)
Angled Riffleshell	<i>Epioblasma biemarginata</i>	H		EXTI (SX)
Anthony's River Snail	<i>Athearnia anthonyi</i>	H	LE	PROT (S1)
Armored Rocksnail	<i>Lithasia armigera</i>	H		TRKD (S1S2)
Atlas Pebblesnail	<i>Somatogyrus humerosus</i>	H		HIST (SH)
Birdwing Pearlymussel	<i>Lemiox rimosus</i>	H	LE	PROT (SX)
Clubshell	<i>Pleurobema clava</i>	H	LE	PROT (SX)
Cumberland Leafshell	<i>Epioblasma stewardsonii</i>	H		EXTI (SX)
Cumberland Monkeyface	<i>Quadrula intermedia</i>	H	LE	PROT (S1)
Cumberlandian Combshell	<i>Epioblasma brevidens</i>	H	LE	PROT (S1)
Fanshell	<i>Cyprogenia stegaria</i>	H	LE	END (S1)
Fluted Kidneyshell	<i>Ptychobranthus subtentum</i>	H	LE	PROT (SX)
Kidneyshell	<i>Ptychobranthus fasciolaris</i>	E		END (S1)
Monkeyface	<i>Quadrula metanevra</i>	H		TRKD (S3)
Mucket	<i>Actinonaias ligamentina</i>	H		TRKD (S2)
Muddy Rocksnail	<i>Lithasia salebrosa</i>	H		TRKD (S1)
Ohio Pigtoe	<i>Pleurobema cordatum</i>	H		TRKD (S2)
Orange-foot Pimpleback	<i>Plethobasus cooperianus</i>	E	LE	END (S1)
Ornate Rocksnail	<i>Lithasia geniculata</i>	H		TRKD (S2)
Ovate Pebblesnail	<i>Somatogyrus excavatus</i>	H		HIST (SH)
Oyster Mussel	<i>Epioblasma capsaeformis</i>	H	LE	PROT (SX)
Painted Creekshell	<i>Villosa taeniata</i>	H		TRKD (S3)
Pale Lilliput	<i>Toxolasma cylindrellus</i>	H	LE	PROT (S1)
Pink Heelsplitter	<i>Potamilus alatus</i>	H		TRKD (S2)
Pink Mucket	<i>Lampsilis abrupta</i>	E	LE	END (S2)

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Common Name	Scientific Name	Element Rank ²	Federal Status ³	State Status ³ (Rank) ⁴
Purple Wartyback	<i>Cyclonaias tuberculata</i>	E		END (S1)
Pyramid Pigtoe	<i>Pleurobema rubrum</i>	H		PROT (S2)
Ring Pink	<i>Obovaria retusa</i>	E	LE	END (S1)
Rock Pocketbook	<i>Arcidens confragosus</i>	H		TRKD (S2S3)
Rough Pigtoe	<i>Pleurobema plenum</i>	H	LE	PROT (S1)
Round Combshell	<i>Epioblasma personata</i>	H		EXTI (SX)
Round Hickorynut	<i>Obovaria subrotunda</i>	H		TRKD (S2)
Rugged Hornsnail	<i>Pleurocera alveare</i>	H		TRKD (S2)
Sheepnose	<i>Plethobasus cyphus</i>	H	LE	TRKD (S2S3)
Shiny Pigtoe Pearlymussel	<i>Fusconaia cor</i>	H	LE	PROT (S1)
Slabside Pearlymussel	<i>Pleuronaia dolabelloides</i>	H	LE	PROT (S1)
Spectaclecase	<i>Cumberlandia monodonta</i>	E	LE	TRKD (S2S3)
Spike	<i>Elliptio dilatata</i>	H		TRKD (S1)
Sugarspoon	<i>Epioblasma arcaeiformis</i>	H		EXTI (SX)
Tennessee Clubshell	<i>Pleurobema oviforme</i>	H		TRKD (S1)
Tennessee Riffleshell	<i>Epioblasma propinqua</i>	H		EXTI (SX)
Tuberculed Blossom Pearlymussel	<i>Epioblasma torulosa torulosa</i>	H	LE	PROT (SX)
Varicose Rocksnail	<i>Lithasia verrucosa</i>	H		TRKD (S3)
White Wartyback	<i>Plethobasus cicatricosus</i>	E	LE	END (S1)
Yellow-blossom Pearlymussel	<i>Epioblasma florentina florentina</i>	H	LE	PROT SX)

¹ Source: TVA Natural Heritage Database, queried on 27 December 2015

Heritage Element Occurrence Rank; E = extant record ≤25 years old; H = Historic Occurrence; X = considered extirpated

³ Status Codes: LE or END = Listed Endangered; EXTI = Extirpated from state or region; NMGT = In Need of Management; PROT = State Protected; TRKD = Tracked by state natural heritage program (no legal status)

⁴ State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; SH = Possibly Extirpated (Historic); SX = Considered Extirpated

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