

*Final Environmental Impact Statement
and Land Management Plan*

**Pickwick
Reservoir**



August 2002



FINAL ENVIRONMENTAL IMPACT STATEMENT

PICKWICK RESERVOIR LAND MANAGEMENT PLAN

TENNESSEE VALLEY AUTHORITY
RESOURCE STEWARDSHIP
PICKWICK WATERSHED TEAM

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FINAL ENVIRONMENTAL IMPACT STATEMENT PICKWICK RESERVOIR LAND MANAGEMENT PLAN

Colbert and Lauderdale Counties, Alabama; Tishomingo County, Mississippi; and Hardin County, Tennessee

Responsible Federal Agency: Tennessee Valley Authority (TVA)

Abstract: TVA is proposing to update the 1981 Pickwick Reservoir Land Management Plan (1981 Plan) for approximately 19,238 acres of TVA public land on Pickwick Reservoir in Alabama, Mississippi, and Tennessee. The proposed updated Reservoir Land Management Plan (Plan) would be used to guide land use approvals, private water use facility permitting, and resource management decisions on Pickwick Reservoir. The proposed Plan allocates land into broad categories, including Project Operations, Sensitive Resource Management, Natural Resource Conservation, Industrial/Commercial Development, Developed Recreation, and Residential Access. In addition, approximately 12,849 acres of land currently committed to a specific use through previous land transfers, leases, and contracts would be allocated to that current use. The proposed Plan would result in about 63 percent of Pickwick Reservoir land being allocated to Natural Resource Conservation, seven percent to Sensitive Resource Management, and 6.7 to 6.9 percent to Developed Recreation. The alternative to continue management under the 1981 Plan, also analyzed in this document, would allocate less land to Natural Resource Conservation (32 up to 55 percent) and more land to Industrial and Commercial Development (two up to 13 percent).

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SUMMARY

FINAL ENVIRONMENTAL IMPACT STATEMENT PICKWICK RESERVOIR LAND MANAGEMENT PLAN Colbert and Lauderdale Counties, Alabama; Tishomingo County, Mississippi; and Hardin County, Tennessee

Introduction

Tennessee Valley Authority (TVA) is proposing to update the 1981 Pickwick Reservoir Land Management Plan (1981 Plan) for TVA public land around Pickwick Reservoir. Currently, TVA owns and manages 19,238 acres of land on the reservoir. TVA intends to use the proposed updated Reservoir Land Management Plan (Plan) to guide future decision making and to systematically manage its reservoir properties. The Plan is intended to be consistent with the purposes of the Pickwick Project, which is a multipurpose reservoir operated by TVA for navigation, flood control, power production, recreation, and other uses. The Plan also seeks to address issues and concerns raised by the public including protection of sensitive resources.

Originally, TVA acquired approximately 63,625 acres of land for the Pickwick Project. Of that, 42,708 acres are covered by water during normal summer pool (414-foot mean sea level [msl]). Subsequent transfers and sales of land for various commercial, industrial, residential, and recreational uses have resulted in a current balance of 19,238 acres of TVA public land being allocated.

The proposed Plan is intended to provide a clear statement of how project land would be managed in the future based on scientific, cultural, and economic principles, and on public needs. TVA considered a wide range of possible land uses in the development of the proposed Plan. Each parcel of land was reviewed to determine its physical capability for supporting certain uses, other potential suitable uses of such land, and the needs of the public expressed during the scoping process. The Plan was developed using information obtained from the public, various state and federal agencies, elected officials, resource conservation groups, and other interested groups, existing and newly collected field data, both on land conditions and resources, and technical knowledge of TVA staff. Based on this information, the Pickwick Planning Team allocated parcels into one of seven land use zones. These zones are listed below (a more detailed definition of each zone can be found in the Final Environmental Impact Statement [FEIS]):

- Zone 1 - Non-TVA Shoreland
- Zone 2 - Project Operations
- Zone 3 - Sensitive Resource Management
- Zone 4 - Natural Resource Conservation
- Zone 5 - Industrial/Commercial Development
- Zone 6 - Developed Recreation
- Zone 7 - Residential Access

Public Involvement and Issue Identification

TVA determined that the development of an Environmental Impact Statement (EIS) would allow a better understanding of the impacts of the proposed land use changes. Accordingly, TVA published a Notice of Intent to prepare an EIS in the *Federal Register* on March 26, 2001. From March 26, 2001, to June 1, 2001, TVA sought comments from citizens, agencies, and organizations. TVA hosted four public meetings at the following locations:

- Tishomingo County High School, Iuka, Mississippi
- Adams Mark Hotel, Memphis, Tennessee
- Pickwick Landing State Park, Pickwick Dam, Tennessee
- TVA Environmental Research Center, Muscle Shoals, Alabama

A total of 203 participants attended these public meetings. In addition, written comments were invited through a news release and newspaper notices. Information collected from these efforts was used to identify the following issues to be addressed in the EIS:

- Terrestrial Ecology (Plant and Animal Communities)
- Sensitive (Endangered and Threatened) Species
- Managed Areas and Sensitive Ecological Sites
- Water Quality
- Aquatic Ecology
- Wetlands and Floodplains
- Land Use and Prime Farmland
- Cultural Resources
- Air Quality
- Navigation
- Recreation
- Visual Resources
- Noise
- Socioeconomic Impacts
- Environmental Justice

TVA published a Notice of Availability for the Draft Environmental Impact Statement in the *Federal Register* on May 3, 2002. From May 3, 2002, to June 17, 2002, TVA sought comments from citizens, agencies, and organizations. TVA hosted four public meetings at the following locations:

- TVA Environmental Research Center, Muscle Shoals
- Tishomingo County High School, Iuka, Mississippi
- Adam's Mark Hotel, Memphis Tennessee
- Pickwick Landing State Park, Pickwick Dam, Tennessee

Alternatives

Three alternatives were developed and evaluated in the FEIS. Brief summaries of each alternative are provided below. The distribution of proposed land uses (by acres) for each alternative is shown in Table 1.

Table 1. Comparison of Alternatives - Acres							
Existing (1981) Allocation Categories	Current Land Use Zones	Alternative A		Alternative B		Alternative C	
		Acres	%	Acres	%	Acres	%
Retained Developed Safety Harbors	Zone 2 - Project Operations	2,718.93	14.1	2,860.89	14.9	2,860.89	14.9
Cultural Resources Management Special Management Areas Visual Protection	Zone 3 - Sensitive Resource Management	1,220.42 up to 1335.03	6.3 up to 6.9	1,351.78	7.0	1,357.78	7.0
Wildlife Management Forest Management Agriculture Open Space	Zone 4 - Natural Resource Conservation	4,840.34 up to 9,249.96	25.2 up to 48.1	12,078.52	62.8	12,219.34	63.5
Industrial Sites Navigation	Zone 5 - Industrial/ Commercial Development	434.18 up to 2,499.63	2.3 up to 13.0	534.45	2.8	450.71	2.4
Recreation	Zone 6 - Developed Recreation	372.79 up to 2,457.91	1.9 up to 12.8	1,327.33	6.9	1,291.36	6.7
Previously Unplanned	Zone 7 - Residential Access	1,070.99 ^a	5.5	1,085.43	5.6	1,064.43 ^a	5.5
Previously Unplanned		259.13 ^b	1.3				
Previously Planned, but not included in proposed updated plan.	Transferred land Land under water.	(1,200) (2,000)					
	Total	~21,100 ^c		19,238.40		19,238.40	

- ^a The 1,070.99 acres of Zone 7 land allocated under Alternative A was reduced by 6.56 acres. This marginal strip with water access rights has been developed as Mill Creek Boat Dock, a commercial marina since the 1981 Plan. Under Alternatives B and C, this land is allocated to Zone 6, Developed Recreation.
- ^b This previously unplanned land does not have water access rights and under Alternatives B and C, has been allocated to Zone 4, Natural Resource Conservation.
- ^c The original 1981 Plan included approximately 21,100 acres. Additional acreage in the original 1981 Plan included approximately 1,200 acres of land that have been transferred to other agencies and approximately 2,000 acres that are under water. Also, the 1981 Plan did not include approximately 1,064 acres of Residential Access shoreline and 259 acres of shoreline that does not have residential access rights (see footnote b).

Alternative A – Current Plan (No Action)

Under Alternative A, the No Action Alternative, TVA would continue to use the existing 1981 Plan to guide its land use decisions. When a proposal is received from an external applicant or internal TVA organization, the proposed land use request is evaluated for consistency with the 1981 Plan. If the requested land use is consistent with the 1981 Plan, the request can be considered, pending further environmental review on the site-specific aspects of the project. The 1981 Plan designated 10 allocation categories. In addition, TVA public land surrounding Pickwick Reservoir has been conveyed by TVA to individuals or groups for various uses, including industrial, recreation, and public works projects. The 1981 Plan also did not include residential shoreline development land. Of the land planned in 1981, approximately 25 up to 48 percent was allocated to natural resource management-related uses, 6.3 up to 6.9 percent to Sensitive Resource Management, and two up to 13 percent to Industrial/Commercial Development uses. TVA retained approximately 14 percent of the land for Project Operations and public works projects.

In implementing Alternative A, actual use for land with multiple tags would be decided on a case-by-case basis, making the assessment of impacts difficult. Therefore, for the comparison purposes of impacts, 1,220.42 up to 1,335.03 acres of land could be allocated to Sensitive Resource Management, 4,840.34 up to 9,249.96 acres could be allocated to Natural Resource Conservation, 434.18 up to 2,499.63 acres could be allocated to Industrial/Commercial Development, and 372.79 up to 2,457.91 acres could be allocated to Recreational Development. The actual allocation would be determined on a case-by-case basis as requests are received.

Alternative B and Alternative C

Under Alternatives B and C, the Plan map would be updated to reflect current uses and to allow additional but limited recreational or industrial development in a few selected locations. Based on consideration of resource inventories and public concerns, TVA has considered a different mix of land allocations. The percentage of land allocated for Sensitive Resource Management would increase to 7.0 percent; Natural Resource Conservation would increase to 62.8 percent and 63.5 percent; and Developed Recreation would increase to 6.9 percent and 6.7 percent. These allocations reflect public input, regulatory requirements, and the programmatic interests of TVA. This approach also provides enhanced protection of sensitive resources, such as rare species, wetlands, and cultural resources. The proposed allocations for Parcels 37, 53, and 156 differ under Alternatives B and C. Under Alternative B, a balanced alternative, TVA would allocate these 145 acres of TVA public land to Zone 5, Industrial/Commercial Development, Zone 6, Developed Recreation, and Zone 7, Residential Access. Under Alternative C, a conservation alternative, TVA would allocate this land to Zone 4, Natural Resource Conservation.

Comparison of Alternatives

Direct comparison of parcel land uses between alternatives is difficult because the land use allocation categories and definitions for the 1981 Plan and for the proposed alternatives are not the same. The reservoir land planning process has been updated and streamlined since 1981. In the 1981 Plan, many of the parcels were designated for

multiple uses, whereas the current process places land into one of seven land use zones. The existing 1981 Plan allocated approximately 21,100 acres which included approximately 1,200 acres that were transferred to other agencies. It also included approximately 2,000 acres that are submerged. The 1981 Plan did not allocate 1,330.12 acres of residential shoreline or other marginal shoreline strips along the reservoir. Under the proposed alternatives, all marginal shoreline strips with water access rights are allocated to Zone 7, Residential Access. Despite these differences, the allocated land uses in the 1981 Plan (Alternative A) and the proposed Plan (Alternatives B and C) for each TVA parcel have been identified and compared. For comparison purposes, an approximate relationship between the 1981 allocation categories and the current planning zones is shown in Table 1.

Under Alternatives B and C, more acreage is allocated for sensitive and natural resource uses than under Alternative A (see Table 2). Under Alternative B, approximately 2,845 to 7,369 acres of land would be allocated to more protective uses (Zones 3 and 4) than under Alternative A. Under Alternative C, approximately 2,992 to 7,516 acres of land would be allocated to more protective uses (Zones 3 and 4) than under Alternative A.

Table 2. Comparison of Acres Allocated to Sensitive and Natural Resource Uses		
Alternative	Allocation	Acres
Alternative A	Cultural Resources Management Special Management Areas, Visual Protection, Wildlife Management, Forest Management, Agriculture , Open Space	6,061 to 9,250
Alternative B	Zone 3 - Sensitive Resource Management Zone 4 – Natural Resource Conservation	13, 430
Alternative C	Zone 3 - Sensitive Resource Management Zone 4 – Natural Resource Conservation	13, 577

Under Alternative C, approximately 145 acres would be allocated to more protective uses (Zone 4) than under Alternative B. Approximately 89 acres of Natural Resource Conservation are proposed to be allocated to Industrial/Commercial Development. A large number of sites previously allocated for access for future industrial development would be allocated to more protective categories. In addition, approximately 1,070.99 acres of marginal shoreline strip, not included in the 1981 Plan, would be allocated for Residential Access due to existing deeded rights for water access. Under Alternatives B and C, approximately 36 acres that were previously allocated to Industrial/Commercial Development are considered for allocation to Recreation Development or Natural Resource Conservation. Approximately 21 acres of land with existing privately-owned residential cabins and associated water use facilities are considered for allocation to either Natural Resource Conservation or Residential Access.

Affected Environment

At normal summer pool, Pickwick Reservoir is 52.7 miles long, and the shoreline length is 490.6 miles. Pickwick Reservoir spans portions of four counties in three states, (Colbert and Lauderdale Counties in Alabama, Hardin County in Tennessee, and Tishomingo County in Mississippi). TVA public land surrounding Pickwick Reservoir includes TVA-managed Natural Areas, Habitat Protection Areas, land fronting residential development, state parks, Wildlife Management Areas, forest areas, licensed recreation areas, power transmission line corridors, riparian/wetland areas along streams and the reservoir shoreline, and the Pickwick Landing Dam Reservation. Privately-owned land surrounding Pickwick Reservoir is a mosaic of residential and industrial/commercial development, upland and bottomland forests, and farmland comprised of hay, pasture, row crops, and small woodlots. The Pickwick Reservoir is, in landscape character, similar to other reservoirs in the Tennessee River system. Substantial visual features throughout the reservoir also include secluded coves where vegetation and wildlife populations abound, shoreline areas that serve as a visual buffers, and isolated areas of visual significance, such as undisturbed, pristine parcels amidst visually congested land.

The numerous plant communities on Pickwick Reservoir provide suitable habitat for a variety of wildlife species. These diverse plant communities include pine/hardwood forests, upland and riparian hardwood forests, and old field and agricultural field habitats. In addition to distinctive vegetated communities, many features, such as forested and emergent wetlands, streams, limestone bluffs, caves, and sinkholes, on reservoir parcels provide unique habitats for wildlife. Protected plant species known from the four counties spanned by Pickwick Reservoir include one federal-threatened plant species, one species that is a candidate for federal listing, and 105 species that are protected by the states of Alabama, Tennessee, and/or Mississippi. No federal-listed plant species or suitable habitat for such species were located during field investigations. Five Mississippi state-listed plant species were observed during these surveys, all occurring on Parcel 128.

The various aquatic and terrestrial habitats in the vicinity of Pickwick Reservoir provide suitable habitat for many species of federal- and state-listed species of wildlife. Twenty-five listed terrestrial animal species, approximately 165 caves, and five heron colonies were identified from the project area. Four of these terrestrial animals are protected by the U.S. Fish and Wildlife Service and the remaining 21 are protected by the states of Alabama, Mississippi, or Tennessee. Suitable bald eagle and Osprey nesting, foraging, and wintering habitat are found along Pickwick Reservoir on parcels which support large areas of middle-age and mature woodlands. Ospreys began nesting on Pickwick Reservoir in 2000. A pair of Ospreys has maintained a successful nest for two years on Parcel 39. While no other nests have been reported, osprey are regularly observed on Pickwick Reservoir during summer months, indicating that more nests likely exist around the reservoir. Gray bats are listed as federal-endangered and gray bat colonies are known from several caves on Pickwick Reservoir. Key Cave contains the largest maternity colony of gray bats on Pickwick Reservoir. Several smaller colonies of gray bats exist in caves throughout Pickwick Reservoir. Indiana bats have not been observed in caves on Pickwick Reservoir land in recent years. Mature hardwood forest communities on Pickwick Reservoir provide suitable summer habitat for Indiana bats. Although the red-cockaded woodpecker was not observed during field surveys, it was considered during this review. Little suitable habitat for red-cockaded woodpeckers exists on Pickwick Reservoir land. The long-tailed weasel, protected in the state of

Alabama, was found on Parcel 32. There are no other reports of the long-tailed weasel from the vicinity. A colony of great blue herons has been established in recent years below Wilson Dam (Parcel 39). This colony has grown from 30 to 100 nests in the past three years. The presence of this heron colony and the increase in ospreys and bald eagles in the vicinity of Pickwick Reservoir is of importance. These species were severely affected by the widespread use of the pesticide DDT during the 1970s. As DDT levels decreased in the past 15 years, the numbers of heron colonies, ospreys, and bald eagles have increased throughout the Tennessee River Valley. However, the numbers of these birds have remained low around Pickwick and Wheeler Reservoirs. The recent increase in these nesting birds in the past five years suggests that the water quality has improved to the point that these birds can successfully reproduce on Pickwick Reservoir.

The reservoir also contains common habitat types found in the region, such as old fields and pine woodlands, which provide potential habitat for protected terrestrial animals. There are numerous forested woodland communities of excellent quality on Pickwick Reservoir land. These parcels contain suitable habitat for Cooper's hawk, Swainson's warbler, eastern big-eared bat, and northern long-eared bat. These parcels also contain trees that are mature enough to provide roosting habitat for federal-endangered Indiana bats. There are several wetland communities, although most are limited to the mouths of tributaries. These habitats are suitable for the little blue heron, queen snake, map turtle, chorus frog, meadow jumping mouse, southeastern shrew, southern coal skink, and pigmy rattlesnake. Woodland rock outcrops can provide habitat for a variety of protected species of terrestrial animals. Rock outcrops provide habitat for green salamander, cave salamander, black king snake, eastern wood rat, and old field mouse. Seepages are uncommon on Pickwick Reservoir land. Several small seepages were found on Parcels 155 and 128. These sites provide suitable habitat for red salamander, southern zigzag salamander, and spring salamander. Caves are fragile ecosystems that provide habitat to a diverse group of organisms. Because cave systems are usually isolated from other cave systems, groups of organisms that live in a given cave often depend on the presence of one particular species (keystone species) to survive.

The TVA Regional Natural Heritage database indicated that there are pre-impoundment records of several mussels, a snail, and three fish from the waters now included in vicinity of Pickwick Reservoir which are protected as state- and federal-listed endangered or threatened species. In addition, 10 snails, 18 mussels, three crayfish, and four fish are tracked as sensitive aquatic species by the Alabama Heritage Program. However, because of the habitat changes resulting from impoundment, many of these sensitive aquatic species are believed to be extirpated from the reservoir. Currently, six federal-listed mussels, one federal-listed fish, and one rare shrimp are known from the areas included in the Plan.

There are 15 Managed Areas or Significant Ecological Sites on or adjacent to public lands on Pickwick Reservoir. Several of the areas, including the Natchez Trace Parkway, Pickwick Landing State Resort Park (including Burton Branch Primitive Area), and J. P. Coleman State Park are managed for recreation. Three of the areas—Lauderdale County State Wildlife Management Area, Seven Mile Island State Wildlife Management Area, and Key Cave National Wildlife Refuge—are managed for recreation and resource management. Two areas, Old First Quarters TVA Small Wild Area and the Rockpile National Recreation Trail are managed for low-impact, public use such as hiking. Several areas, Cooper Falls TVA Habitat Protection Area, Coffee Bluff TVA

Habitat Protection Area, Sandstone Outcrops/Pickwick Lake Protection Planning Site, East Port Bluffs, Key Cave Aquifer Hazard Area, Alabama Cave Fish Designated Critical Habitat, and Wilson Dam Tailwaters Restricted Mussel Harvest Area, are managed and/or monitored for federal- and/or state-protected species. Based on survey findings, one parcel (Parcel 128) was found suitable to recommend for designation as a TVA Natural Area. No parcels were found suitable for Small Wild Area, Wildlife Observation Area, or Ecological Study Area designation at this time.

Water quality in Pickwick Reservoir is considered good based on TVA's Reservoir Vital Signs Monitoring Program. The only water quality parameter measured during the program that has shown a declining trend is chlorophyll levels, indicating an overall increase in nutrient loading in the reservoir. Pickwick Reservoir has a "good" aquatic habitat condition rating along its shoreline. Sixty-five percent of the shoreline habitat scored good; 33 percent scored fair; while only two percent fell into the poor category. Ratings from TVA's Vital Signs monitoring conducted from 1991 to 1998 for fish and benthic communities ranged from fair to good for both communities. Pickwick Reservoir is rich in benthic fauna with a mussel sanctuary starting at the base of Wilson Dam and going downstream to the head of Seven Mile Island. Based on historic and recent fisheries data collected in the reservoir, it appears that Pickwick Reservoir is maintaining a diverse and healthy fish community.

In general, forested wetlands comprise the majority of wetland area associated with Pickwick Reservoir. Extensive areas of forested wetlands occur in the Seven Mile Island area (Parcel 32) and are also found in the floodplains and riparian zones of Second Creek (Parcel 16), Malone Creek (Parcel 57), Yellow Creek (Parcels 134 and 135), Colbert Creek (Parcel 26), Little Bear Creek (Parcel 44), Panther Creek (Parcel 9) and its tributaries, Indian Creek (Parcel 121) and Mulberry Creek (Parcel 55). There is also a unique palustrine forested wetland dominated by bald cypress trees located in the Coffee Slough area behind Seven Mile Island (Parcel 30). This is the easternmost occurring locale of naturally occurring bald cypress trees on the Tennessee River system. Emergent and scrub-shrub wetlands have developed in the embayments and mouths of tributary streams. There are significant areas of emergent wetlands found in Malone Creek (Parcel 57), Little Bear Creek (Parcel 44), and Yellow Creek (Parcels 134 and 135).

The 100-year flood elevation for Pickwick Reservoir varies from elevation 419.0 feet above msl at Pickwick Landing Dam (Tennessee River Mile [TRM] 206.7) to elevation 434.9-feet msl at the upper end of Pickwick Reservoir at TRM 259.4 (downstream of Wilson Dam). The Flood Risk Profile (FRP) elevation varies from elevation 419.0-feet msl at Pickwick Dam (TRM 206.7) to elevation 437.2-feet msl at the upper end of Pickwick Reservoir at TRM 259.4. For Pickwick Reservoir, the FRP elevations are equal to the 500-year flood elevations.

The soils surrounding the reservoir are silt loams which have developed from limestone, alkaline shale, or Coastal Plain marine sediments. Many of these soils are classified as prime farmland soils. According to the State Soils Geographic database statistics, about 75 percent of the soils on the TVA public land surrounding the Pickwick Reservoir are prime farmland soils.

Over 725 archaeological resources have been identified on TVA public land surrounding Pickwick Reservoir from existing data and recent survey results. The eligibility of these

or other resources for the National Register of Historic Places (NRHP) would be determined when specific actions are proposed that could potentially affect historical properties. This review would be undertaken in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966. The acquisition of land for the Pickwick Reservoir by TVA resulted in the removal of most structures and other man-made features. Very few structures remained, though many historic structures do remain on adjacent non-TVA land. Due to their age and architectural character, Pickwick Dam and Powerhouse are considered historically significant. Known historic sites on TVA public land include the former river port towns of Waterloo, Riverton, and Eastport, remnants of the old Muscle Shoals Canal and the later Lock No. 1 of the Wilson Dam complex, the former Keller Quarry Landing, the Colbert Shoals Canal, the Riverton Lock complex, and the White Sulphur Springs cabin group.

All counties that surround Pickwick Reservoir and their surrounding counties are in air quality attainment. However, in July 1997, the U.S. Environmental Protection Agency (USEPA) promulgated new, more restrictive standards for ozone and particulate matter. These new standards include an 8-hour standard for ozone that would supersede the old 1-hour standard. The EPA is moving forward to develop implementation guidance for both of these standards, and expects to promulgate designations for the 8-hour ozone standard by 2004. There is a likelihood that some of the counties which surround Pickwick Reservoir may not attain the new standards for ozone and particulate matter, when these new standards are eventually implemented after collection of the requisite air monitoring data.

The commercial navigation channel on Pickwick Reservoir extends from the Pickwick Landing Lock and Dam at TRM 206.7 upstream to the Wilson Lock and Dam at TRM 259.4. The commercial channel is a year-round channel with a minimum 11-foot depth suitable for towboats and barges with a nine-foot draft. Navigation safety landings and harbors have been established at various places along the reservoir to provide safe locations for commercial tows to tie off and wait during periods of severe weather, fog, or equipment malfunction. There are public and private use barge terminals on Pickwick Reservoir which handle barge shipments of various commodities.

Recreation facilities are provided on and adjacent to the reservoir by federal, state, county, municipal, and commercial entities. Facilities include 12 campgrounds, 21 boat ramps, seven marinas, and three locations with a resort lodge and/or rental cabins.

The 2000 population of the four counties in the Pickwick Reservoir area is estimated to have increased by 9.4 percent over the 1990 population. Minorities account for 12.7 percent of the population in the Pickwick Reservoir area. This is far below the three-state and national levels, which are 27.9 and 30.9 percent, respectively. In 2000, the civilian labor force of the three-county area was 88,365. Of these, 5,274 were unemployed, yielding an unemployment rate of 6.0 percent. In 1999, the four-county Pickwick Reservoir area had 92,988 jobs, an increase of 16.7 percent over the level in 1989. Per capita personal income in the area increased by 51.4 percent from 1989 to 1999. Overall, the poverty level in the four-county area at 14.3 percent is lower than the three-state average of 15.5 percent, but higher than the national figure of 13.3 percent.

Environmental Consequences

Under any alternative, sensitive resources, such as endangered and threatened federal- and state-listed species, cultural resources, and wetlands, would be protected. Future residential, industrial, and recreational developments on adjacent private property or on TVA property have the potential to result in water quality effects due to increased soil erosion, chemical usage, and sewage loading. However, these effects are not inevitable, and can be avoided by use of vegetated buffer zones and development restrictions such as those required for residential permitting according to TVA's Shoreline Management Policy. In implementing any of the three alternatives, impacts to floodplain values would be insignificant and any development proposed in the 100-year floodplain would be subject to the requirements of Executive Order 11988 (Floodplain Management). None of the alternatives directly result in any significant impacts on air quality. Indirectly, there could be significant air quality impacts from specific future proposed actions on some acres designated Industrial/Commercial Development. However, those proposed actions would be carefully reviewed for approval or disapproval and impacts would be avoided or mitigated according to air quality permit requirements and any other appropriate commitments. In site-specific cases where some wetland impacts do occur, mitigation requirements would offset any long-term loss of wetland functions. Mostly, impacts to wetlands would be mitigated by avoiding these areas and including small upland buffers. There may also be some incremental clearing of wetland vegetation by landowners resulting in some minor, cumulative loss of wetland function, primarily shoreline stabilization, wildlife habitat provision, and plant community diversity.

In implementing the No Action Alternative, potential impacts to threatened or endangered plant species associated with Parcel 128 are expected to be significant, because this site could be considered for future development. Potential impacts to rare plants and uncommon plant communities found on Parcel 128 would potentially be significant because disturbance of the vegetation on the tops of the bluffs or on the bluff faces would seriously alter this community and probably result in the loss of these rare plant occurrences. However, during the individual site review for any future proposals, a mitigation plan for these resources could be developed to reduce the level of impacts. Adoption of Alternative A would have the greatest potential on air quality impacts because more industrial and/or commercial development is possible. The potential for converting prime farmland is also the greatest under Alternative A because more acreage is allocated for Zones 5 and 6 than by the other alternatives. The 1981 Plan does not provide for specific preservation of archaeological resources; however, TVA will comply with regulatory requirements of NHPA and the Archaeological Resources Protection Act (ARPA). Site-specific activities proposed in the future would be approved, mitigated, or denied according to the significance of cultural resources present.

Under Alternative B, more land is allocated to Zones 5, Industrial/Commercial Development, and 6, Developed Recreation, than under Alternative C. Under Alternatives B and C, impacts to threatened or endangered plant species associated with the allocation of Parcel 128 are expected to be beneficial because Parcel 128 would be allocated to Zone 3, Sensitive Resource Management. This would offer protection to the rare plants and uncommon plant community found here. More land would be allocated to Zones 3, Sensitive Resource Management, and 4, Natural Resource Conservation under Alternatives B and C than under Alternative A. Public

requests for additional boat access areas can be accommodated in existing recreation areas and also are compatible with Zone 4, Natural Resource Conservation, areas, including the Lauderdale and Seven Mile Island Wildlife Management Areas. Under Alternatives B and C, more resources would be allocated to land use categories that provide cultural resource protection than Alternative A would. TVA would incorporate a phased identification and evaluation procedure to take into consideration the effects on historic properties to comply with Section 106 of the NHPA. Also, fewer archaeological resources would be affected because more parcels would be allocated to Zone 4, Natural Resource Conservation, or Zone 3, Sensitive Resource Management, and, therefore, subject to less proposed disturbance. All uncommitted TVA public land with historic structures would be allocated to Zone 3, Sensitive Resource Management, or Zone 4, Natural Resource Conservation, for protection. Both Alternatives B and C would have insignificant potential impacts on prime farmland and would protect existing visual resources and maintain scenic integrity and attractiveness.

The Preferred Alternative

TVA prefers Alternative B over the No Action Alternative and Alternative C. Alternative B would allocate a substantial amount of acreage to Natural Resource Management and Sensitive Resource Management, while also providing industrial/commercial and recreational development opportunities. Under Alternative B, the allocation of Parcel 37 to Developed Recreation would be compatible with the City of Florence's request for the River Heritage trail project. The allocation of Parcel 53 to Industrial/Commercial Development would be compatible with any industrial projects on the Barton Industrial Site. The allocation of Parcel 156 to Residential Access would be compatible with the existing use of summer cabins, commonly known as the White Sulphur Springs Cabin sites. As indicated in this analysis, the potential environmental impacts of these developments would be insignificant. TVA would designate the entrance to Key Cave (Parcel 31) for addition to the Key Cave National Wildlife Refuge and Parcel 128 would be designated as a TVA Natural Area.

Mitigation Commitments

The following commitments would be used in preparing the Record of Decision for the FEIS.

Under all alternatives:

- All soil-disturbing activities, such as dredging, shoreline excavations, etc., on Parcels 26, 36, 41, 61, 63, 66, 67, and 68 would be conducted in a manner to avoid impacts to cultural resources.
- The construction of water use facilities and shoreline alterations within the marked limits of the safety landings and harbors would be prohibited.
- Requests for water use facilities on shoreline immediately upstream and downstream of the safety landings and harbors would continue to be reviewed to

ensure that barge tows would have sufficient room to maneuver in and out of the safety landings and harbors without the risk of damaging private property.

- Because caves are extremely fragile and biologically significant, TVA has placed and would continue to maintain protective buffer zones around each of the known caves on TVA public land on Pickwick Reservoir.

Under Alternative B:

- Wetlands on Parcel 37 would be mitigated by avoiding wetland areas, including small upland buffers.
- Corridors for water access across Parcel 53 would be designed to avoid impacts to terrestrial habitat and wetlands.
- Requests for the alteration or further development of Parcel 53 would need to include BMPs and maintenance of a 50-foot SMZ to reduce potential impacts.
- Should TN SHPO determine an adverse effect for the allocation of Parcel 156 to Residential Access, TVA will negotiate mitigation measures with the SHPO.
- Requests for the alteration or development of Parcel 156 would need to include mitigation measures, such as vegetation management plans, use of architecturally compatible styles/colors, and height restrictions to maintain the scenic attractiveness without adversely impacting the scenic integrity.

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Acronyms and Abbreviations

1981 Plan	1981 Pickwick Reservoir Land Management Plan
ADCNR	Alabama Department of Conservation and Natural Resources
ALNHP	Alabama Natural Heritage Program
APE	Area of Potential Effects
ARPA	Archaeological Resources Protection Act
BMPs	Best Management Practices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
DO	Dissolved Oxygen
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FRP	Flood Risk Profile
FWW	Florence Wagon Works
HPA	Habitat Protection Area
mgd	Million gallons per day
mg/kg	Milligrams per kilogram
MLC	Montana Land Company
msl	mean sea level
NEP	Nonessential Experimental Population
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNL	National Natural Landmark
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
Parkway	Natchez Trace Parkway
Plan	Reservoir Land Management Plan

PSD	Prevention of Significant Deterioration
SAHI	Shoreline Aquatic Habitat Index
SAS	Statistical Analysis Systems
SCS	Soil Conservation Survey
SEDA	Shoals Economic Development Authority
SHPO	State Historic Preservation Officer
SMI	Shoreline Management Initiative, TVA
SMP	Shoreline Management Policy, TVA
STATSGO	State Soils Geographic Database
TCDF	Tishomingo County Development Foundation
Tenn-Tom	Tennessee-Tombigbee
TRM	Tennessee River Mile
TVA	Tennessee Valley Authority
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WMA	Wildlife Management Area