

FINAL ENVIRONMENTAL IMPACT STATEMENT

**UNION COUNTY MULTIPURPOSE RESERVOIR/
OTHER WATER SUPPLY ALTERNATIVES PROJECT**

TENNESSEE VALLEY AUTHORITY

June 2000

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Responsible Federal Agency: Tennessee Valley Authority

Cooperating Agencies: City of New Albany, Mississippi
Union County Development Association
Union County Board of Supervisors
U.S. Geological Survey (USGS)
Mississippi Department of Environmental Quality

Abstract: TVA and the cooperating agencies have prepared this Environmental Impact Statement (EIS) to document the environmental impacts associated with alternative means of meeting the future water needs of Union County, Mississippi. Water in Union County is currently supplied by numerous wells. Recently, pumping from these wells has lowered groundwater levels and several new wells have been unproductive. Water demand projections for Union County predict nearly 7 million gallons of water will be needed per day by the year 2050. Union County has determined that in order to attract new industry, a more reliable and cost efficient water source is needed. Four water supply alternatives have been evaluated: continue using existing wells (Alternative 1); construct a 960 acre multipurpose reservoir on Cane Creek, a new water treatment plant, and a connecting pipeline (Alternative 2); construct a pipeline connection to an existing water supply system, most likely the Northeast Mississippi Regional Water Supply District in Tupelo (Alternative 3); and increasing the water withdrawal from currently used aquifers underlying Union County, which would involve constructing new wells, expanding existing wells and constructing connecting pipelines (Alternative 4). Alternative 2 would require TVA to relocate a 161- kV transmission line. Alternative 2 would result in the highest level of environmental impacts while potentially producing the most economic benefits.

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ACRONYMS AND ABBREVIATIONS

ACHP – Advisory Council on Historic Preservation

BMP – Best Management Practice

CR – County Road

LWA – Lower Wilcox Aquifer

CSA – Coffee Sand Aquifer

DEIS – Draft Environmental Impact Statement

DRI – Data Resources Incorporated (Standard and Poor’s national population forecasts)

e.g. – for example

EIS – Environmental Impact Statement

EMA – Eutaw-McShan Aquifer

EO – Executive Order

EPT – Measure of water quality based on presence of three species of aquatic insects, Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies)

etc. – and others

FEIS – Final Environmental Impact Statement

FFPPA – Federal Farmland Protection Policy Act

i.e., – that is

IWR-MAIN – Water demand management software

MDEQ - Mississippi Department of Environmental Quality

K value – erosion potential factor

NEMWSD - Northeast Mississippi Water Supply District

NEPA – National Environmental Policy Act

NFIP – National Flood Insurance Program

NHPA – National Historic Preservation Act

NPDES – National Pollution Discharge Elimination System

NWI – National Wetland Inventory

OLWR – Office of Land and Water Resources (Mississippi Department of Environmental Quality)

PAS – Paleozoic Aquifers

ROW – Right of Way

SCS/NRCS – Soil Conservation Service, now Natural Resources Conservation Services

T factor – soil loss Tolerance factor

TAS – Tuscaloosa Aquifer System

TVA – Tennessee Valley Authority

TVARNHP – Tennessee Valley Authority Regional Natural Heritage Program

UCDA – Union County Development Association

USCOE – U.S. Corps of Engineers

USDA – U.S. Department of Agriculture

USEPA – U.S. Environmental Protection Agency

USFS – U.S. Forest Service

USFWS – U.S. Fish and Wildlife Service

USGS – U.S. Geological Service

UNITS OF MEASURE

dB	Decibels (Noise measurement)
dBA	Decibels of A weighted sound (that heard by humans)
cfs	cubic feet per second
cfs/sq mi	cubic feet per second per square mile
cm	centimeters
ft	feet
ft/mi	feet per mile
gpm	gallons per minute
kV	kilovolt, a unit of potential difference equal to 1000 volts
km	kilometer
m	meter
mgd	million gallons per day
mL	milliliter
msl	mean sea level
NTU	Nethelometric Turbidity Units
ppm	part per million
PCU	Platinum-Cobalt Units
PSD	Percent of Significant Deterioration (air pollution measurement)
SPL	Sound Pressure Level
7Q10 flow	7 day average low flow that occurs once every 10 years

Conversion Table

<u>English</u>	<u>Metric</u>
inch	2.54 centimeters
foot	0.3048 meters
mile	1.609 kilometers
cubic feet	0.028 cubic meters
gallon	3.785 liters
part per million	1 milligram per Liter
acre	0.405 hectares

Summary

Water for residential, commercial, institutional, and industrial uses in Union County, Mississippi, including the City of New Albany, is currently supplied by numerous wells. In 1998 the average daily water demand for the county was approximately 2.85 million gallons per day (mgd). The peak daily demand was approximately 4.2 mgd. By the year 2050, the water demand is expected to reach almost 7 mgd with the peak daily demand exceeding 9 mgd (see Section 1.2).

The Eutaw-McShan aquifer is the major source of groundwater for the county, supplying almost 70 percent of the current demand. The Gordo, Coffee Sand, and Ripley aquifers supply the remaining demand. Pumping from these wells has lowered groundwater levels. Several new wells drilled in the area have generally been unproductive.

Consequently, the City of New Albany and Union County combined efforts to develop an alternate source of water supply. In July 1998, the Tennessee Valley Authority (TVA) was asked to assist in assessing the environmental consequences of alternatives for meeting the future water needs. This environmental impact statement (EIS) reviews the impacts of a proposed multipurpose reservoir to provide an adequate and reliable water supply for Union County. It will also consider other alternative means of meeting the area's water supply needs. The multipurpose reservoir alternative would require TVA to relocate a 161-kV transmission line.

For the purposes of this EIS, two water projections were made to determine water needs through the year 2050. Under the normal-growth scenario, water demand in Union County would grow from the 1998 level of 2.85 to 4.99 mgd, a 75 percent increase. Under the high-growth scenario, water demand would grow to 6.7 mgd, an increase of 134%. (Section 1.2)

The purpose of this Environmental Impact Statement (EIS) is to assess the environmental consequences of alternatives for providing a reliable, cost efficient source of water supply to meet the projected water needs of New Albany and Union County through the year 2050. Members of the public and various other agencies have participated in the preparation of this EIS by attending a public scoping meeting on December 10, 1998, and a public meeting to provide comments to the Draft EIS on May 1, 2000, in addition to submitting written comments on the scope of this evaluation and on the Draft EIS. Comments received on the DEIS are addressed in this Final Environmental Impact Statement (FEIS)(Appendix D).

As indicated in Chapter 2, this EIS considers four alternatives approaches to meeting Union County's water demands. These alternatives include making no change to Union County's water supply (Alternative 1), construction of a multipurpose reservoir on Cane Creek (Alternative 2), constructing a pipeline

from an existing water source to bring additional water supply into the county (Alternative 3), and expanding groundwater sources on an as needed basis (Alternative 4).

Alternative 1, No Action is based on normal growth projections. Adoption of Alternative A would result in the city of New Albany and Union County continuing to make incremental improvements to their existing supply systems. The TVA would not relocate a portion of the New Albany-Ripley #2 161 kV Transmission Line from the proposed reservoir basin. Alternative 1 would have minimal impacts on all resource areas reviewed compared with other alternatives.

Alternative 2, Multipurpose Reservoir is based on the high growth scenario. Adoption of Alternative 2 would result in the construction of a 2,000-foot long earthen dam about 1.75 miles upstream of Cane Creek's junction with the Little Tallahatchie River and the impoundment of 960 acres of land. The proposed reservoir site was selected based on the recommendation of a U. S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) feasibility study of 6 potential locations conducted in 1988. A new water treatment plant would be constructed downstream of the proposed Clear Creek Dam, and an associated pipeline would connect it to the existing Union County water distribution system. TVA would relocate a 5.5 mile segment of the Albany-Ripley #2 161kV Transmission Line from the reservoir basin to one of two potential routes north and east of the reservoir. The new transmission line would be built on a 100-foot right of way, using single or double pole metal structures with horizontal cross arms. The location of these features are shown in Figure 2.2-1.

The Multipurpose Reservoir and Pipeline from Existing Source Alternatives would result in improvements to the future availability of groundwater by shifting uses to surface water sources. Union County is seeking industrial development for the area and has set up the Union County Development Association (UCDA) with a stated purpose "to promote and advance the commercial, industrial, agricultural, civic and general interests of the citizens and businesses of Union County". A main goal of the organization is the attraction of new industries and businesses. The high growth projections used in the water demand analysis includes a 161 percent increase in industrial demand by 2050. It is possible that this projection could be exceeded, however, if the UCDA is successful in recruiting more new industries than projected once an appropriate water supply to support the added demand is obtained. Given the uncertainty in developing groundwater sources and in projecting future industrial growth, the concern of Union County officials regarding the lack of a readily available supply of water for industry is understandable. The development of a surface water supply, designated principally for industrial use, would allow the county greater flexibility in attracting large industry and optimize their alternatives while protecting ground water supplies from possible over draft and encouraging conjunctive use as specified in Section 51-3-1 et seq., Mississippi code 1972, annotated.

Union County plans to establish a governing body to oversee operations of the reservoir, including determination of seasonal water levels, balance water supply with recreation needs, and the amount and type of shoreline development. This alternative would have the most long-term impacts due to the inundation of 960 acres of land along Cane Creek and changes to stream ecology resulting from impoundment. These impacts are not expected to be significant, and some would be beneficial. Alternative 2 is discussed in more detail in Section 2.2

Alternative 3, Pipeline From Existing Water Supply is also based on the high-growth scenario. Adoption of Alternative 3 would result in the construction of a pipeline connection to the Northeast Mississippi Regional Water Supply District (NMRWSD) water supply system at Tupelo. A connection to NMRWSD would require construction of a 27 mile long 24-inch iron pipeline beginning north of Tupelo, following an existing 18-inch pipeline right-of-way along US Highway 45 North, and then along the north side of US Highway 78 West, terminating in New Albany at the existing water tank on Apple Street. Because of its length, at least one pressure booster station would be built along the pipeline. The pipeline construction process is described in more detail in Section 2.3. In order to meet the additional water demand from New Albany, NMRWSD would have to increase its plans to expand its treatment plant capacity by an additional 6 mgd to a total capacity of 30 mgd. All plans to extend or alter an existing public water supply system must be approved by the Mississippi State Department of Health. Alternative 3 is projected to have greater impacts than the No Action Alternative due to short-term pipeline construction impacts, but less environmental consequences than the Multipurpose Reservoir Alternative.

Alternative 4, Additional Groundwater Sources is an incremental approach that could be used to meet the high-growth scenario. Adoption of Alternative 4 would result in increasing water withdrawal from currently used aquifers underlying Union County. It would require the construction of pipelines connecting the new wells to existing distribution systems, and would likely include construction of additional wells in the vicinity of existing wells. Wells would be added and sited to meet the needs of specific additional large industrial water supply users, in addition to meeting an increasing municipal demand. These wells would likely be sited close to existing public roads, requiring less than 0.25 acres each. An access road would be built to each well site, likely requiring some grading. Temporary mud pits built to contain slurry generated during well drilling would be removed and the site restored upon completion of the well. A pumphouse would be built at the wellhead. Alternative 4 would have somewhat more impacts than the No Action Alternative, based on projected increases in the number of wells and the additional amount of water that would be withdrawn from groundwater aquifers, but would have less impacts than either the Multipurpose Reservoir or Pipeline from Existing Water Supply Alternatives.