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ALLEN FOSSIL PLANT EMISSION CONTROL PROJECT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Shelby County, Tennessee

Prepared by:
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Symbols, Acronyms, and Abbreviations

ACC	Allen Combined Cycle
ALF	Allen Fossil Plant
BMP	Best Management Practices
CAA	Clean Air Act
CC	Combined Cycle
CEQ	Council on Environmental Quality
CT	Combustion Turbine
CWA	Clean Water Act of 1972
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
gpm	Gallons Per Minute
MGD	Million Gallons per Day
MLGW	Memphis Light, Gas, and Water Division
NEPA	National Environmental Policy Act
POTW	Publically Owned Treatment Works
SEA	Supplemental Environmental Assessment
TVA	Tennessee Valley Authority
WWTP	Wastewater Treatment Plant

CHAPTER 1 – PURPOSE AND NEED FOR ACTION

1.1 Introduction and Background

In August 2014, the Tennessee Valley Authority (TVA) issued a Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for a project to replace the existing coal-fired plant at TVA's Allen Fossil Plant (ALF) with a natural gas-fired combined cycle plant in Shelby County, Tennessee. The gas plant will replace all coal-fired generation at ALF.

Figure 1-1 shows the location of the existing coal-fired plant and the location of the natural gas combined cycle plant that TVA plans to build.

The August 2014 EA, entitled Allen Fossil Plant Emission Control Project (herein referred to as the ALF Emission Control EA), explored two alternatives: Alternative A – No Action, and Alternative B – Retire ALF and construct a Natural Gas-Fired Facility. Based on analysis in the EA, TVA concluded that implementing Alternative B would not be a major federal action significantly affecting the environment, and it was determined that an Environmental Impact Statement was not required. Subsequent to the issuance of the FONSI, TVA made a decision to construct a combined cycle (CC) facility with a generation capacity of approximately 1,000 megawatts of power.

As proposed, the new Allen Combined Cycle (ACC) facility would have a recirculating cooling water system that would require make up water to be added during operation. The plant would use approximately 2,400 gallons per minute (gpm) (or 3.5 million gallons per day [MGD]) of gray water on an annual average and would discharge approximately 10 to 20 percent of that amount depending upon regional energy demands, ambient conditions, and the quality of the gray water. Gray water would be supplied to the ACC plant by the City of Memphis Public Works Maxson wastewater treatment plant (WWTP) located adjacent to the proposed plant site. It would be piped to the ACC plant, used, and waste water discharged back to the Maxson WWTP.

1.2 Proposed Action

TVA has determined that substantial equipment and annual routine maintenance would be required to treat and prepare gray water from the Maxson WWTP to be suitable for cooling the ACC plant. Therefore, TVA is proposing two alternative methods for obtaining make up water to cool the ACC plant. TVA proposes to drill up to five wells to draw groundwater to be used for make-up water for the recirculating cooling water system at the ACC plant. Groundwater would be obtained from the Memphis Sands aquifer. The five wells would be drilled within the property boundaries of the ACC plant (see Figure 1-1). Alternatively, TVA could purchase potable water from Memphis Light, Gas, and Water (MLGW) to obtain adequate cooling water. Detailed descriptions of these alternatives are provided below.

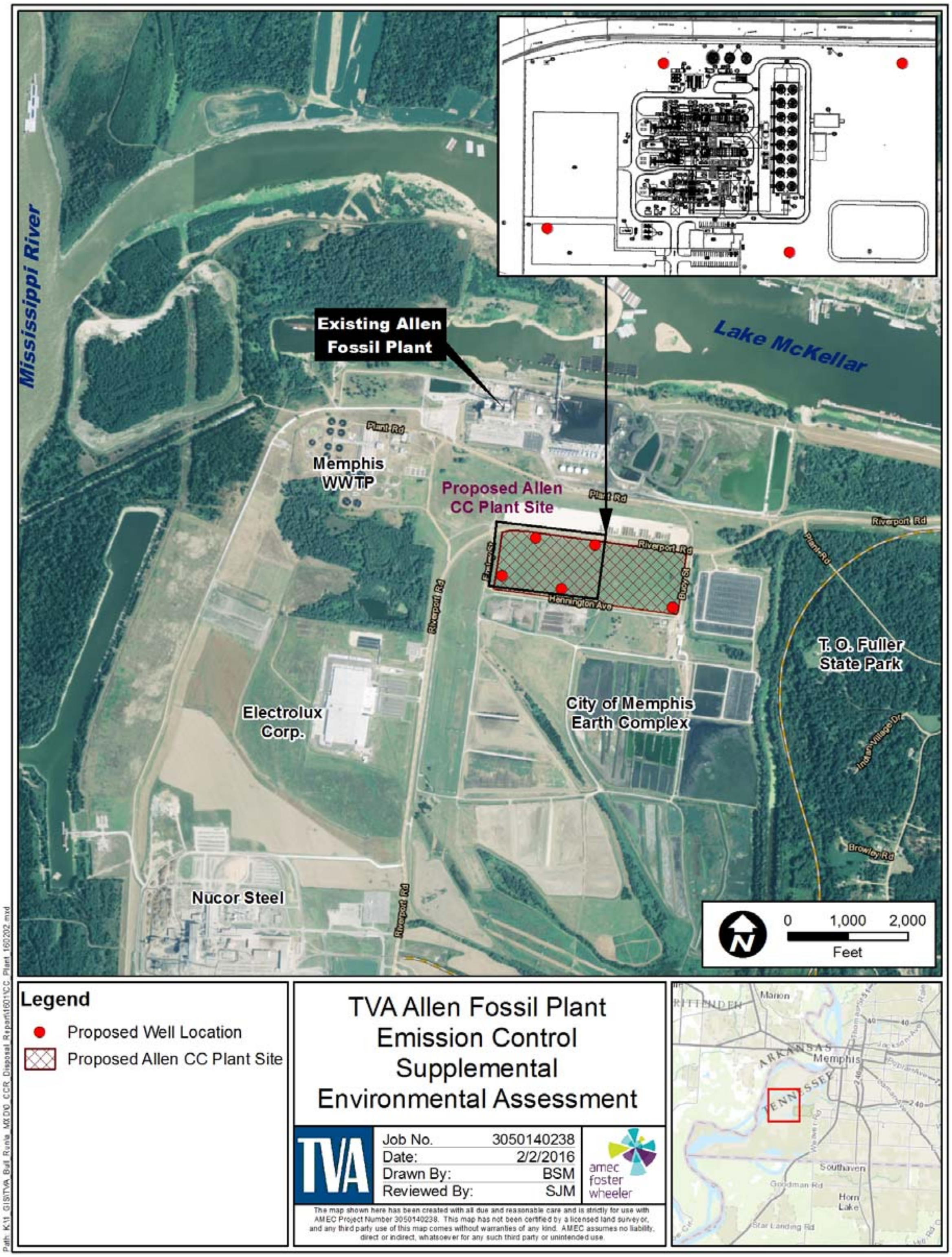

Figure 1-1. Project Location

1.3 Purpose and Need

The purpose of the proposed action is to provide an adequate, cost-effective water supply to ACC to replace cooling water system losses that must occur as part of the evaporative cooling process (Figure 1-2).

When the ACC plant is producing power, up to 300,000 gpm is continuously recirculated through the cooling water system. As water is lost from this process, make-up water must be provided in order to maintain this volume to adequately cool the combined cycle equipment. Average make-up losses from the cooling water system are anticipated to be 2,400 gpm (3.5 MGD) and up to 5,000 gpm for peak operation during short periods on the hottest days of the year. These anticipated make-up water needs are minimized at ACC by recycling all other plant waste water streams through the cooling water system.

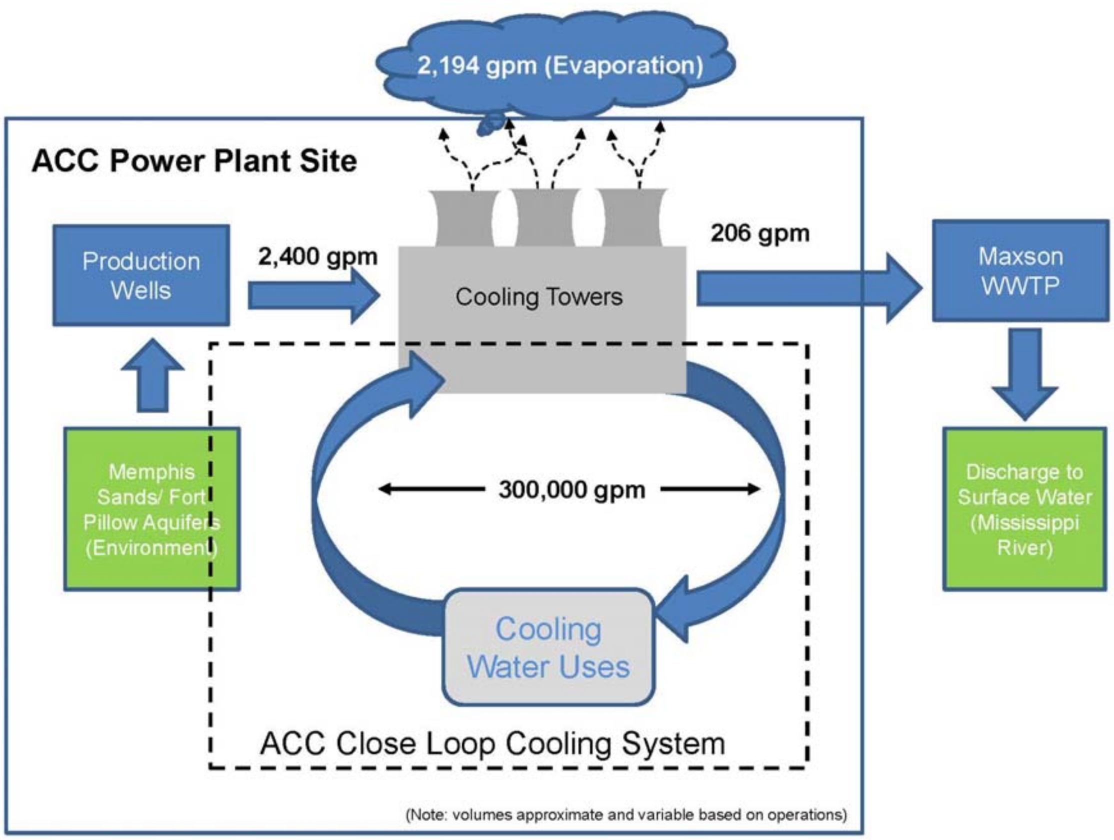

Figure 1-2. Schematic of ACC plant Cooling Water System

During the detailed engineering phase of this project, TVA evaluated several gray water treatment technologies required to remove constituents that would significantly reduce the effectiveness of the cooling water system equipment. Using gray water would require TVA to install new equipment and processes to make the gray water suitable for use in the ACC cooling system. An economic analysis was performed on each technology and results indicated that the cost associated with gray water treatment is significantly more expensive than using other water sources. TVA now needs to consider alternatives for supplying cooling water that are more feasible.

1.4 Other Environmental Reviews and Documentation

TVA prepared an environmental review for actions related to the proposed construction and operation of a CT/CC facility and the construction of the associated gas pipeline system:

> *Environmental Assessment and FONSI, TVA's Allen Fossil Plant Emission Control Project,* August 2014 (TVA 2014).

The findings in this SEA are summarized in Chapter 3 for each relevant environmental resource, and analyses of the prior EA are incorporated by reference as appropriate.

1.5 Permits, Licenses and Approvals

TVA had previously identified a number of permits and approvals required to support the development of the ACC plant in the ALF Emission Control EA. Additional authorizations required for the proposed action could include the following:

- Installation of properly designed wells in accordance with the Groundwater Quality Control Board for Shelby County and the Shelby County Well Construction Code.

- Well Permit through the Memphis and Shelby County Health Department

1.6 Scope of the Supplemental Environmental Assessment

The geographic scope of this analysis includes the 73.3-acre (ac) property leased by TVA for the planned ACC located immediately south of ALF (see Figure 1-1). This SEA addresses the potential impacts of the development and operation of the actions associated with the proposed alternatives.

TVA prepared this SEA to comply with the National Environmental Policy Act (NEPA) and regulations promulgated by the Council on Environmental Quality (CEQ) and TVA's procedures for implementing NEPA.

This Supplemental Environmental Assessment (SEA) tiers from TVA's August 2014 ALF Emission Control EA. Based on the specific activities proposed for this project, TVA was able to focus its environmental review on specific resources and eliminate others from further evaluation. This SEA does not contain detailed discussions on resources not found in the project area, or where site-specific conditions would not change the impact analysis presented in the ALF Emissions Control EA.

In consideration of the nature and scope of the proposed action, TVA determined that the potential impacts of the alternatives under consideration on the following environmental resources are bounded by assessment of the ALF Emissions Control EA: air quality, climate change, land use, prime farmland, vegetation, wildlife, aquatic ecology, threatened and endangered species, geology, wetlands, floodplains, surface water, natural areas, parks, public recreation, cultural and historic resources, visual resources, hazardous materials and hazardous waste, solid waste, noise, transportation, socioeconomics, environmental justice, and public health and safety.

Therefore, because the proposed action is primarily associated with the withdrawal of groundwater for ACC use, the only resource retained for detailed analysis in this SEA is groundwater. TVA's action under this SEA would satisfy the requirements of Executive

Order (EO) 11988 (Floodplains Management), EO 11990 (Protection of Wetlands), EO 12898 (Environmental Justice), EO 13112 (Invasive Species), and EO 13653 (Preparing the United States for the Impacts of Climate Change); and applicable laws including the National Historic Preservation Act of 1966, Endangered Species Act of 1973 (ESA), Clean Water Act (CWA), and Clean Air Act (CAA).

CHAPTER 2 – ALTERNATIVES

2.1 Description of Alternatives

This chapter describes the alternatives TVA evaluated in this review. Alternatives evaluated in detail are described below.

2.1.1 Alternative A – No Action Alternative

Under the No Action Alternative, TVA would obtain gray water from, and discharge wastewater to, the Maxson WWTP as it is described in the ALF Emission Control EA.

This alternative would require capital costs of approximately $8.9 million. Economic analysis during the detailed engineering phase of this project indicates that the water treatment costs associated with this alternative would cost approximately $6.3 million every year in operating and maintenance expense. Additionally, because gray water from the Maxson POTW would require additional equipment and operational support to provide water of sufficient quality for cooling, this alternative has the potential to reduce operational efficiency and reliability.

2.1.2 Alternative B – Installation of Groundwater Wells

Under this alternative, TVA would install five wells to provide groundwater for cooling water system make-up at the ACC plant. Groundwater would be obtained from the Memphis Sands aquifer. The five wells would be drilled within the property boundaries of the ACC plant as illustrated in Figure 1-1. Consistent with local health department requirements, these wells would be installed with the following set-backs:

- 15 feet (ft) from overhead or underground power lines and building foundations;
- 25 ft from public roads, easements, natural gas lines (including biogas lines), and water mains;
- 50 ft from the property line, storm drains, gravity sanitary sewer lines, and drainage canals, stream, etc.;
- 100 ft from septic lines and field, any identifiable contamination sources, and force main (including the sewer line from the administration building).

Each well would be capable of producing 1,250 gpm. Only two wells would be needed to supply 2,400 gpm, which is an adequate quantity of cooling water system make-up for normal operation of the ACC plant. Up to two additional wells would be operated to obtain up to 5,000 gpm to supply sufficient cooling water system make-up for peak generation periods. The fifth well would be available as a back-up. With this combined system of greater pumping capacity, and the availability of backup systems, this alternative would provide for greater reliability of cooling water for plant operations.

Waste water from the cooling water system would be sent to the Memphis Public Works Maxson WWTP located near the ACC plant as originally planned. The estimated waste water flowrate is 200 gpm (average) and 500 gpm (maximum). The interface point between the Maxson WWTP and the ACC plant would be located on the north side of the ACC plant.

This alternative would require capital costs of approximately $8.6 million. Annual operation and maintenance costs of this alternative are estimated to be $0.7 million per year.

2.1.3 Alternative C – Purchasing Water from MLGW

Under this alternative, TVA would purchase potable water from Memphis Light, Gas and Water Division (MLGW) for use as cooling system make-up water. MLGW's potable water system draws from the Fort Pillows and Memphis Sands aquifers. Based on information from MLGW, the peak cooling system needs of 5,000 gpm could not be met due to existing infrastructure limitations. However, the annual average amount (approximately 2,400 gpm) could be supplied.

In order to meet peak demand,TVA would have to store potable water in tanks constructed within the ACC footprint. TVA estimates that three 4-million gallon tanks would be required to supply the necessary cooling system make-up water during peak operational periods. These tanks would store enough make-up water to support approximately three days of peak CC operation. This alternative could limit the operational capacity and reliability of the plant.

This alternative would require capital costs of approximately $8.3 million. Economic analysis conducted during the detailed engineering phase of this project indicates that the water treatment costs associated with this alternative would cost approximately $1.7 million dollars every year in operating and maintenance expense.

2.2 Comparison of Alternatives

TVA has analyzed the environmental impacts of two proposed action alternatives that meet the need for cooling water at ACC. TVA continues to refine estimates and plans associated with each alternative. TVA may select one of the options or a combination of portions of the two options as the most feasible and reasonable action. If TVA decides to implement an action that combines portions of the two options, the resulting environmental effects are expected to be no greater than the impacts described herein.

The environmental impacts of Alternatives A, B, and C are analyzed in detail in this SEA and are summarized in Table 2-1. These summaries are derived from the information and analysis provided in the Affected Environment and Environmental Consequences sections of each resource in Chapter 3.

Table 2-1. Summary and Comparison of Alternatives by Resource Area

Issue Area	Alternative A: No Action	Alternative B – Install Groundwater Wells	Alternative C – Purchase Water from MLGW
Cost			
Capital Cost	$8.9 million[1]	$8.6 million	$8.3 million[2]
Yearly O/M Cost	$6.3 million/year	$0.7 million/year	$1.7 million/year
Groundwater	No impacts to groundwater	Localized (1-mi radius) drawdown of Memphis Sands aquifer. No impact expected to other water users	Additional drawdown of Memphis Sand aquifer from existing well system due to additional demand. No impact expected to other water users

[1] Alternative A costs are variable and dependent upon the technology selected to treat the gray water; values listed represents the base case in the original EA.
[2] Based on 8M gallon storage capacity

2.3 Identification of Mitigation Measures

Measures identified in Chapter 3 to avoid, minimize, or reduce adverse impacts to the environment are summarized below. TVA‘s analysis of selected alternatives includes mitigation, as required, to reduce or avoid adverse effects. Project-specific best management practices (BMP) are also identified.

- Fugitive dust emissions from site preparation and construction would be controlled by wet suppression and/or other suitable BMPs.
- Project specific BMPs would be developed as required to ensure that all surface waters are protected at the proposed laydown yards.
- Consistent with EO 13112, disturbed areas would be revegetated with native or non-native, non-invasive plant species to avoid the introduction or spread of invasive species.
- BMPs would be used during construction activities to minimize and restore areas disturbed during construction.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

Chapter 3 describes existing resources that may be affected by the alternatives and the potential direct and indirect impacts on those resources. Chapter 3 focuses on the impacts resulting from the proposed activities added to the original ALF Emission Control EA, which includes the use of gray water from the WWTP.

As described in Section 1.6, the scope of the proposed action is limited. Accordingly, the only resource assessed in this SEA is groundwater. Additionally, TVA will adhere to and support all appropriate standards and requirements (including licensing and permitting) associated with well installation and groundwater usage, as to prevent contamination of groundwater during well installation or operation. Accordingly, no significant impacts to groundwater quality are expected to occur for any of the proposed alternatives. Therefore, the analysis below is appropriately limited to groundwater supply or quantity.

3.2 Groundwater

3.2.1 Affected Environment

The study area resides within the Mississippi Alluvial Plain Subdivision of the Coastal Plain Physiographic Province, an area characterized by flat to gently rolling floodplain terrain bordered on the eastern side by steep loess bluffs. Structurally, the area lies near the center of the upper portion of the Mississippi Embayment, a broad southward-plunging syncline with its axis approximately aligned with the course of the Mississippi River. The syncline consists of several thousand feet of relatively unconsolidated cretaceous, tertiary, and quaternary age deposits of clay, silt, sand, gravel, chalk, and lignite. As is illustrated in Figure 3-1, the principal aquifers of this sedimentary sequence include (in descending order), recent alluvium, the Memphis sand, and the Fort Pillow sand (Brahana and Broshears 2001).

Exploratory drilling at ALF site and the Frank C. Pidgeon Industrial Park, located south of the plant, indicates the alluvial aquifer ranges from 100 to 136 ft in (TVA 2014). The upper alluvial aquifer is a shallow water-bearing zone located in the upper stratigraphic column (see Figure 3-1). The upper portion of the alluvial deposits generally consist of fine sand, silt, and clay; whereas, the basal portion is composed of coarser sand and gravel. Alluvial sediments typically occur in discontinuous lenses and layers and exhibit a high degree of heterogeneity. Recharge occurs primarily by surface infiltration of rainfall. While most groundwater users obtain water from deeper aquifers some water users have established shallow wells within the alluvial aquifer. Well monitoring since 1988 indicates groundwater movement in the alluvial aquifer beneath the plant site is generally northward to McKellar Lake. Depth to groundwater generally ranges from 10 to 30 ft below ground surface and varies seasonally. Given the proximity of the proposed site to the Mississippi River, shallow groundwater present beneath these areas would be expected to flow westward to the river. During flood conditions, hydraulic gradient reversals occasionally occur resulting in temporary recharge of the alluvial aquifer from adjacent surface water bodies. The alluvial aquifer typically provides water for domestic, irrigation, and industrial supplies in the Memphis area.

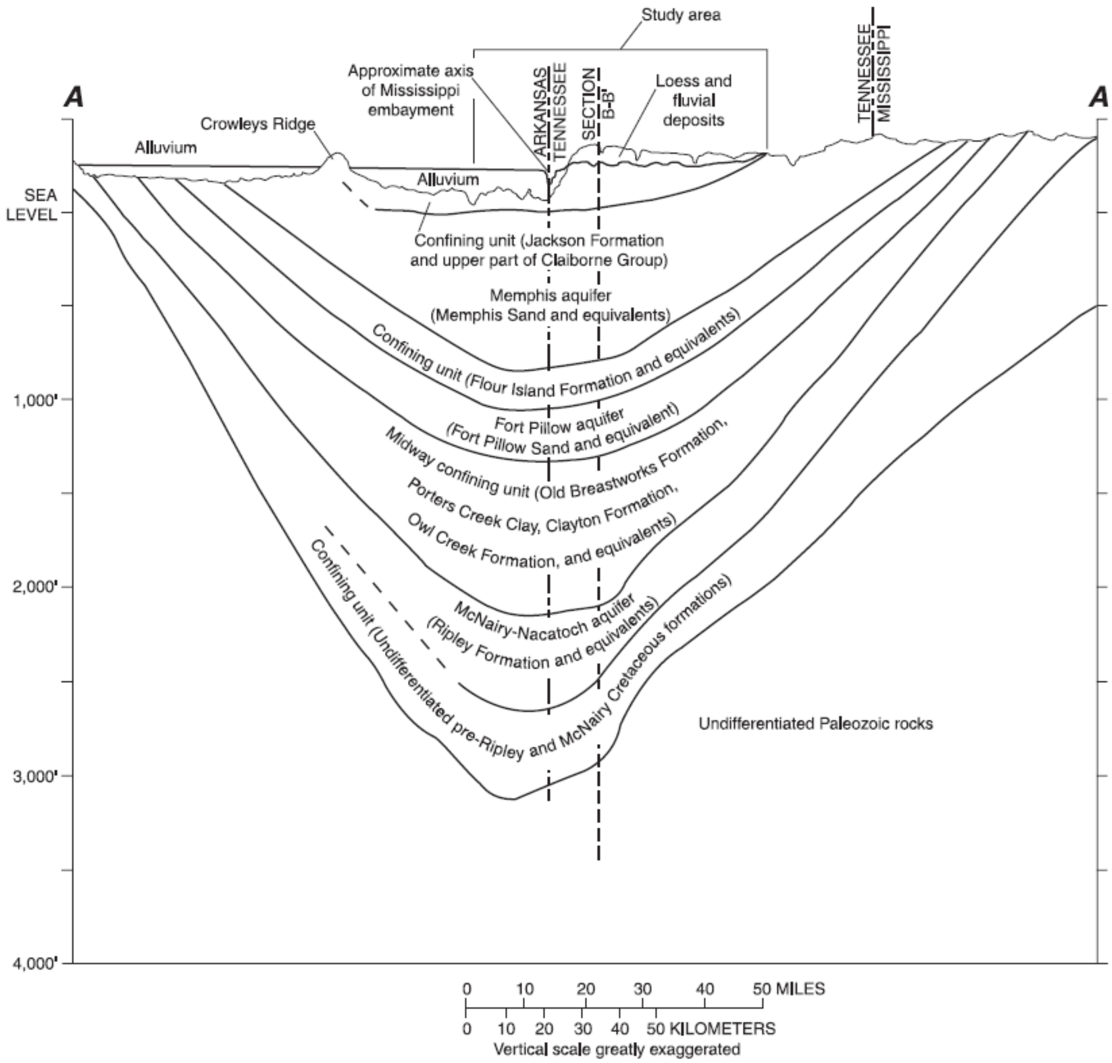

Figure 3-1. Hydrogeologic section showing principal aquifers and confining units (West to East)(Source: USGS 2016).

TVA identified two wells that are installed within the alluvial aquiver within a 1-mi radius of the central point of withdrawal. Both of the defined wells are northeast of the ACC site and are industrial production wells installed in 1971 and 1979, respectively. Both of these wells are relatively shallow (less than 150 ft deep) and are screened in the alluvial (surficial) aquifer not the Memphis Sands aquifer.

The upper alluvial aquifer is separated from the deeper Memphis Sands aquifer by a clay aquitard associated with the Jackson and Upper Claiborne formations. Overall thickness of the Jackson clay varies from 0 to 360 ft regionally. Several deep borings completed at the ALF site encountered the Jackson aquitard at depths between 114 to 144 ft, although none fully penetrated the unit. Aquitard penetrations ranged from 4 to 40 ft and generally indicated the formation consists of silty clay with occasional thin lenses of silt, sand, lignite, and gravel (TVA 2014).

Most West Tennessee citizens rely on ground water for their drinking water. The City of Memphis has one of the largest groundwater withdrawals (135 MGD average production) of any municipality in the southeastern United States. The communities of Bartlett, Germantown and Collierville in Shelby County withdraw an additional 18.5 MGD (TDEC 2014). Withdrawals from the Memphis Sands aquifer in the Memphis area totaled about 196 MGD in 1990 (Parks et al. 1995).

The Memphis Sands is a major regional aquifer and is the principal aquifer that supplies water for domestic, agricultural, commercial, industrial and municipal use in the Memphis area. The aquifer primarily consists of fine-to-coarse sand with isolated lenses of clay and silt. Thickness of the Memphis Sands formation ranges from 500 to 900 ft regionally. Recharge occurs at the aquifer outcrop area in western Tennessee and, to a lesser extent, from influx of groundwater from overlying formations. Regional groundwater movement is generally westward toward the axis of the Mississippi Embayment. However, a large cone of depression has formed around the city due to withdrawals from numerous water supply wells completed in this aquifer in Memphis and neighboring areas of Shelby County.

MLGW operates 10 water pumping stations and more than 175 wells throughout Shelby County (MLGW 2016). In 2000, MLGW's production of groundwater was 167 MGD (USGS 2013). Primary well fields near the ACC that withdraw water from the Memphis Sands aquifer include the well fields at Davis (about 3 mi to the southeast) and Allen (about 6 mi to the east). The Davis Well field consists of 14 production wells installed in 1970 and 1971. The wells range from 412 to 606 ft deep and are screened in the upper to middle parts of the Memphis Sands Screens are 80 ft long with the tops of screens ranging from 332 to 526 ft below ground surface. Well yields range from 1,000 to 1,500 gpm (Parks et al. 1995). Other industrial groundwater users located in the vicinity of the ACC site that utilize the Memphis Sands aquifer include Nucor Steel (1.5 mi southwest); and Vertex Chemical, Cargill Corporation (no longer operational), and Martin Marietta Materials (all located approximately 1.5 mi northeast).

The Memphis sand is separated from the underlying Fort Pillow aquifer by 0 to 310 ft of clay, silt, and sand sediments of the Flour Island aquitard. The Fort Pillow aquifer is not widely used in the Memphis region because of the availability of shallower groundwater resources (TVA 2014).

3.2.2 Environmental Consequences

3.2.2.1 Alternative A – No Action Alternative

Under Alternative A, TVA would obtain gray water from, and send wastewater to, the WWTP as it is described in the ALF Emission Control EA. Therefore, there would be no impacts to groundwater resources as a result of this alternative.

3.2.2.2 Alternative B – Install Groundwater Wells

Under this alternative, TVA would install groundwater wells at five proposed locations in accordance with Shelby County permits and requirements (see Figure 1-1).

A groundwater model developed by USGS that defines the effects of groundwater withdrawals was used to evaluate effects of groundwater use under this alternative. Effects of the ACC operation on the aquifer system were evaluated by comparing the difference in simulated water levels in the aquifers at the end of the scenario (30 years) with and without the ACC plant withdrawals.

The primary environmental consequence of attaining the groundwater required for this alternative from a new well field is the potential for drawdown impacts to the surrounding community from the operation and recovery of between 2,400 and 5,000 gpm from the proposed well system.

Under most conditions, simulated water level changes in the Memphis Sands aquifer from the proposed pumping of the groundwater wells create a cone of depression. Under a very conservative operational scenario in which the plant would withdraw groundwater on a continuous basis (24 hours per day, 7 days per week) for a duration of 30 years, THE modeled withdrawal scenario) that would result in a reduction in the potentiometric surface of 7 ft at the plant site and 4 ft at a radial distance of approximately 1 mi (2,590 ac area) from the proposed groundwater wells (Figure 3-2). Under even more extreme and less likely operational conditions (30 years average withdrawal plus 30 days maximum withdrawal), the reduction in the potentiometric surface at the plant was expected to be 11 ft. Simulated declines at the conclusion of the 30 year simulated withdrawal event in the underlying Fort Pillow aquifer and overlying alluvial aquifer were both less than 1 foot (USGS 2016).

The nearest existing groundwater wells within a 1-mi radius of the proposed point of withdrawal are established within the alluvial aquifer. According to the USGS model, TVA's proposed withdrawal would result in 1 foot or less drawdown of the upper alluvial aquifer at this site (USGS 2016).

Other groundwater users that withdraw water from the Memphis sands aquifer are located northeast and southwest of the ACC site. Based upon the analysis of USGS, some drawdown (2 to 4 ft) may be expected beyond the 1-mile radius (see Figure 3-2). However, it is expected that water supply wells of these facilities are established with extensive screening intervals similar to those used in the Davis well field (80-ft long screens with the tops of screens ranging from 332 to 526 ft below ground surface). While some drawdown to the Memphis Sands aquifer may be evident at other wells in the vicinity, the presence of an extensive screening interval would allow for continuous water supply. Therefore, no impacts to these water users is expected with this alternative.

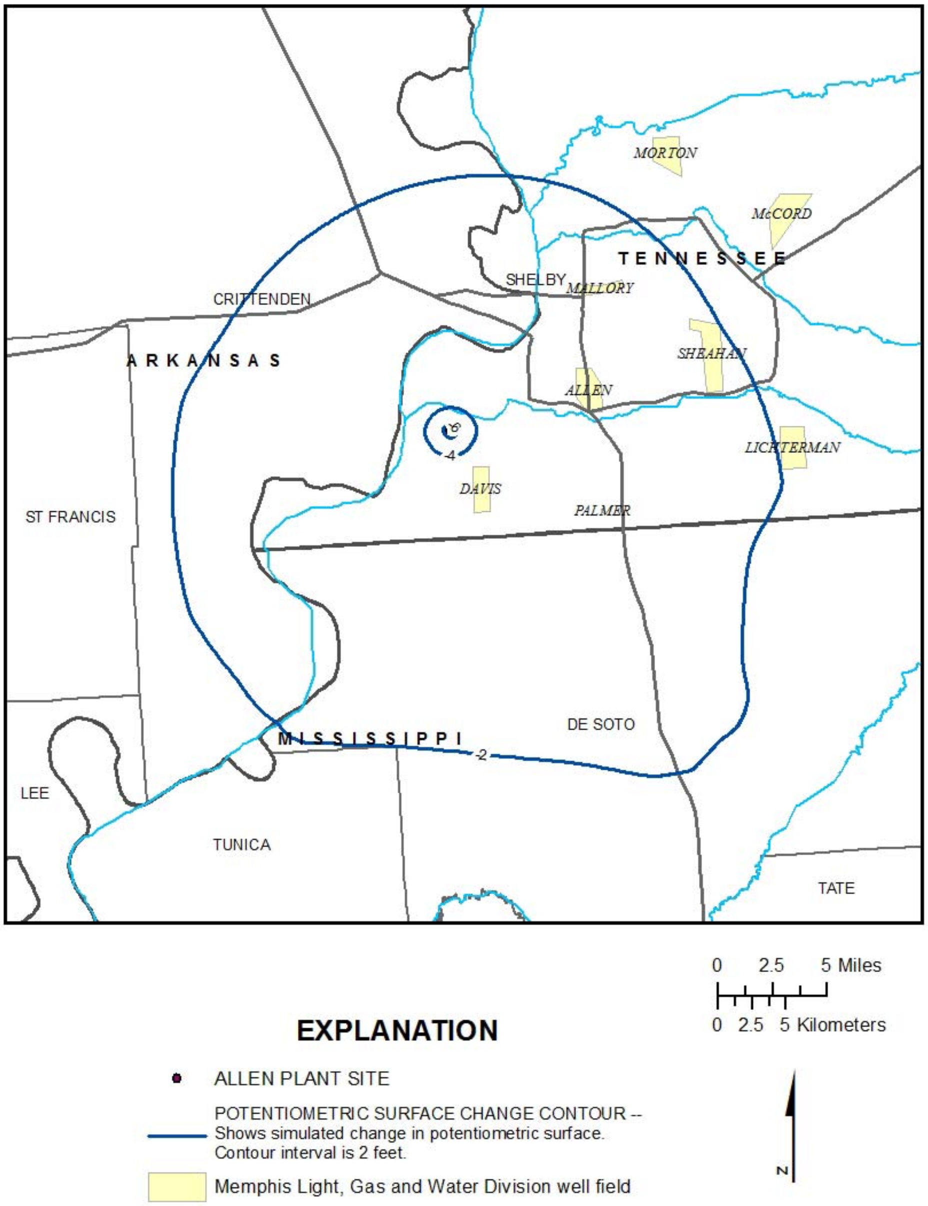

Figure 3-2. Simulated Potentiometric Drawdown of Memphis Sands Aquifer from ACC Production Well Operation (Source: USGS 2016)

3.2.2.3 Alternative C – Purchase Water from MLGW

Under this alternative, TVA would purchase potable water from MLGW and store some in tanks located on-site. MLGW supplies potable water for 257,000 customers in the Shelby County area, and this water is drawn from an aquifer below Shelby County with a capacity of 100 trillion gallons (MLGW 2016).

To develop this alternative, TVA met with representatives of MLGW to determine whether sufficient capacity exists within the MLGW potable water system to provide cooling water for ACC. Based on input from MLGW it was determined that the existing potable water supply system could provide 2,400 gpm of water for cooling, but could not provide the greater volume expected to be needed during peak operational periods (i.e., 5,000 gpm) without significant upgrades to their system infrastructure. As described in Section 2.1.3, TVA would construct storage tanks on the ACC site to provide supplemental cooling water for short term use. Lands used for these storage tanks were previously assessed by TVA in the original EA for the new combined-cycle plant.

The potable water would likely require more process chemical treatment to allow the water to be recycled in the cooling system. The potable water contains higher concentrations of calcium, magnesium, chlorides and silica levels, which makes this overall hardness many times greater than the groundwater. This additional hardness results in a higher rate of corrosion and scale buildup in the cooling water system, which is typically managed with chemical treatment to maximize the recycling of the water. This amount of additional chemical usage is not considered significant, especially when compared to the amount of chemical treatment required for Alternative A.

Therefore, because use of potable water from MLGW would consist of groundwater use that is within the capacity of MLGW, no significant effects on groundwater or groundwater supply would occur under normal circumstances. However, increased demand for potable water by ACC would exert a similar effect on groundwater levels of the Memphis Sands aquifer as was described for Alternative B, albeit from different production wells. Significant impacts to the Memphis Sands aquifer and its groundwater users are not expected under this alternative.

If peak plant operations exceed the capacity of holding tanks, the inability to provide continuous water supply under certain peak generation periods , could potentially constrain plant power production operations.

3.3 Unavoidable Adverse Environmental Impacts

No significant unavoidable adverse impacts are anticipated to result from the construction and operation of the proposed action beyond those already identified in the ALF Emissions Control EA.

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

There would be no changes in short-term use or long-term productivity of the land designated for the groundwater well locations (Alternative B) or for storage tank locations (Alternative C). These facilities would be located within the property already leased by TVA and proposed for development for the ACC. Additionally, the proposed actions occur within a landscape subject to on-going human disturbance and maintenance, therefore the short-term use of the land is not expected to significantly alter long-term productivity of wildlife or other natural resources.

3.5 Irreversible and Irretrievable Commitments of Resources

There would be minor irreversible and irretrievable commitments of groundwater resources due to the use of water by the ACC plant for either Alternative B or C.

3.6 Cumulative Effects

The cumulative impacts of the use of wastewater effluent from the neighboring WWTP was presented in the original ALF Emission Control EA. The analysis in this SEA focuses on how the cumulative impacts may be different from what was documented in the original EA as a result of the installation of the groundwater wells within the ACC plant property.

This analysis is limited to those resource issues potentially adversely affected by project activities at the ACC plant. Accordingly, the only primary resource category specifically considered in this supplemental cumulative effects assessment is groundwater.

3.6.1 Identification of "Other Actions"

TVA previously identified past, present, and reasonably foreseeable future actions in the ALF Emission Control EA, including the ongoing use of the Memphis Sands aquifer as a potable water supply for the Memphis region by MLGW. No additional actions have been identified that would contribute to potentially affected environmental resources.

3.6.2 Analysis of Cumulative Effects

The proposed groundwater wells or storage tanks would be installed within the ACC plant boundary, which is currently vacant and is located within an area of previously disturbed lands associated with industrial uses. The Frank C. Pidgeon Industrial Park area is served by the Davis well field which draws groundwater from the Memphis Sands aquifer. The Davis well field is one of the 10 major water plants within the Memphis area operated by MGLW. Davis is rated as a 30 MGD water treatment plant and is currently planned to be expanded within the next three years (in the absence of ACC water demand) to 35 MGD.

Neither Alternative B nor Alternative C would result in changes to current groundwater use by other facilities. While both alternatives would place an additional demand on water supply, this demand is relatively minor in comparison to the existing developed capacity of the MLGW system (approximately 2 percent), and would not contribute to the need for additional production capacity by MLGW. Therefore, no adverse cumulative effects to groundwater would occur as a result of the proposed action.

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