

SUBJECT: Arkabutla Dam Emergency Interim Repairs- Relief Wells Desoto County, Mississippi; EAXX-202-00-B4P-1730806511.

PUBLIC NOTICE

To Whom It May Concern:

A draft Finding of No Significant Impact (FONSI), along with the draft Environmental Assessment (EA) for the Arkabutla Dam Emergency Interim Repairs-Relief Wells Project in DeSoto County, Mississippi is enclosed for your review and comment. This project involves installing additional relief wells and piezometers at Arkabutla Dam to reduce the likelihood of a breach occurring before long-term repairs to the dam can be completed. Please provide comments by 5 December 2024, to the above address, ATTN: CEMVN-PDN-UDP.

If you have any questions or comments concerning the draft FONSI or EA, please contact Mr. Taylor Piefke of this office by telephone (601) 631-5087 or email Taylor.Piefke@usace.army.mil.

Sincerely,

Mark Smith Chief, Environmental Compliance Branch Regional Planning and Environment Division South

Enclosure

Draft Finding of No Significant Impact

ARKABUTLA DAM EMERGENCY INTERIM REPAIRS- RELIEF WELLS DESOTO COUNTY, MISSISSIPPI; EAXX-202-00-B4P-1730806511

As required by the Procedures for Implementing the National Environmental Policy Act (33 CFR Part 230), the attached draft Environmental Assessment (EA) of a proposal to install additional relief wells and piezometers at Arkabutla dam, in order to reduce the chances of a breach until long-term repairs to the dam can be completed, has been finalized by the U.S. Army Corps of Engineers, Regional Planning and Environment Division South, Vicksburg District. The draft EA addressed reasonably foreseeable impacts associated with installing the relief wells and piezometers.

Based on the information provided in the draft EA, the proposed action would result in no significant adverse effects to the environment. In addition, no historic properties listed in or determined eligible for inclusion in the National Register of Historic Places would be affected by the project. Therefore, an Environmental Impact Statement is not warranted, and a Finding of No Significant Impact is appropriate.

(Date)

Jeremiah A. Gipson Colonel, Corps of Engineers District Commander

Attachment

DRAFT ENVIRONMENTAL ASSESSMENT

ARKABUTLA DAM EMERGENCY INTERIM REPAIRS- RELIEF WELLS DESOTO COUNTY, MISSISSIPPI EAXX-202-00-B4P-1730806511





U.S. Army Corps of Engineers Vicksburg District Regional Planning and Environment Division South Vicksburg Planning Branch



CONTENTS

1	INT	TRODUCTION1		
	1.1	Proj	ject Location1	
	1.2	Pro	posed Actions	
	1.3	Pur	pose and Need for the Proposed Actions3	
	1.4	Aut	hority	
2	ALT	ERN	ATIVES INCLUDING THE PROPOSED ACTION 4	
	2.1	Alte	ernative 1- No Action	
	2.2	Alte	ernative 2- Install Relief Wells and Piezometers at Arkabutla Dam	
3	AFF	ECTI	ED ENVIRONMENT	
	3.1	Des	cription of Project Area	
	3.2	Des	cription of Watershed	
	3.3	Clin	nate7	
	3.4	Geo	ology	
	3.5	Rele	evant Resources	
4	EXI	STIN	G CONDITIONS	
	4.1	Wet	tlands 10	
	4.2	Aqu	atic Resources and Fisheries11	
	4.2	.1	Aquatic Resources11	
	4.2	.2	Fisheries 11	
	4.3	Terr	restrial Resources and Wildlife 12	
	4.3	.1	Terrestrial Resources 12	
	4.3	.2	Wildlife 12	
	4.4	Thre	eatened, Endangered, and Protected Species13	
	4.5	Wat	ter Quality14	
	4.6	Air	Quality15	
	4.7	Cult	tural Resources	
	4.8	Env	ironmental Justice 17	
	4.9	Haz	ardous, Toxic, and Radioactive Waste 19	
5	EN	VIRO	NMENTAL CONSEQUENCES 20	

5.	1	Wetlands 2	20	
5.	2	Aquatic Resources and Fisheries 2	22	
5.	3	Terrestrial Resources and Wildlife 2	22	
5.	4	Threatened, Endangered, and Protected Species 2	23	
5.	5	Water Quality	24	
5.	6	Air Quality 2	24	
	5.6.	.1 Greenhouse Gas Emissions	25	
5.	7	Cultural Resources 2	26	
5.	8	Environmental Justice 2	27	
5.	9	Hazardous, Toxic, and Radioactive Waste 2	28	
5.	10	Cumulative Impacts Analysis 2	28	
	5.10	0.1 Spatial and Temporal Boundaries 2	28	
	5.10	0.2 Description of Cumulative Effects Analysis Area 2	28	
	5.10	0.3 Past, Present, and Reasonably Foreseeable Future Actions 2	29	
	5.10	0.4 Cumulative effects Determination 2	29	
6	Сос	ordination3	30	
7	Compliance with Environmental Laws and Regulations			
8	Prepared By			
9	ATTACHMENTS			
10	References			

FIGURES:

Figure 1: Arkabutla Dam Emergency Repairs ROW.	2
Figure 2: Inundation map of first 60 miles showing a breach	5
Figure 3: Arkabutla Dam Emergency Repairs Project Site Map	5
Figure 4: Arkabutla Dam location and features, DeSoto County, MS	7
Figure 5: Arkabutla Lake Wetlands Map	11
Figure 6: CEJST Map showing part of the project area is identified as disadvantaged	18
Figure 7: EJ Screen Results	19
Figure 8: Arkabutla Pool Levels and Associated Acreages of Aquatic Habitat.	21

Tables:

Table 1: Relevant Resources	9
Table 2: Previously recorded cultural resources located within an approximately 1-mile	. 16
Table 3: Previously recorded cultural resources surveys conducted	. 16
Table 4: Summary of Impacts for the No Action Alternative and Alternative 2	. 29
Table 5: Project Compliance with Environmental Laws	. 30

DRAFT ENVIRONMENTAL ASSESSMENT ARKABUTLA DAM EMERGENCY INTERIM REPAIRS- RELIEF WELLS DESOTO COUNTY, MISSISSIPPI EAXX-202-00-B4P-1730806511

1 INTRODUCTION

The United States Army Corps of Engineers (USACE), Mississippi River Valley Division (MVD), Regional Planning and Environment Division South (RPEDS), Vicksburg District (MVK) has prepared this Draft Environmental Assessment (EA #115) to evaluate the potential impacts associated with installing relief wells in order to reduce pressure on Arkabutla Dam, located in Desoto County, Mississippi.

This Draft EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ's) Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation ER 200-2-2. This Draft EA provides sufficient information on the potential adverse and beneficial environmental effects to allow the District Commander to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.1 **Project Location**

<u>Project Name</u>: Arkabutla Dam Emergency Repairs- Relief Wells, DeSoto County, Mississippi Project.

Arkabutla Dam is located in Desoto County, Mississippi with portions of the Lake extending into Tate County, Mississippi. The dam is located on the Coldwater River, a tributary of the Tallahatchie River, that stores floodwater to provide flood damage reduction in the Yazoo Basin. The dam is located approximately 4.25 miles north of Arkabutla, Mississippi and approximately 35 miles south of Memphis, Tennessee. Arkabutla Dam is one of the four flood control dams in the Yazoo River Basin. The other three flood control dams are Enid on the Yocona River, Sardis on the Little Tallahatchie River, and Grenada on the Yalobusha River.

1.2 Proposed Actions

This project proposes implementing emergency interim risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. The proposed IRRMs would require constructing six new relief wells with laterals, installing new piezometers at various locations, and automating both newly installed and existing piezometers for real time monitoring. This project also proposes to install two new double swing barrier gates on both sides of the conduit to keep the area safe. All work would be completed within Arkabutla Dam's right-of-way (ROW) (Figure 1).



Figure 1: Arkabutla Dam Emergency Repairs ROW, DeSoto County, MS.

1.3 Purpose and Need for the Proposed Actions

Arkabutla Dam had an increased risk of breach since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a backwards eroding pipe developing or progressing. On 7 May 2023 the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering Arkabutla Lake's pool level to 204 ft in order to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, in order to maintain the lake pool at 204 ft until interim and long-term repairs can be made to the dam.

The USACE has developed a Dam Safety Action Classification (DSAC) system to provide consistent and systematic guidelines to address dam safety issues and deficiencies at USACE projects. DSAC ratings, which reflect the degree of urgency in taking action, are informed by the probability of failure and incremental risk associated with the project. The incremental risk is the risk associated with the presence of a dam or project that can be attributed to its breach prior or subsequent to overtopping, or due to component malfunction or maloperation. By definition, incremental risk excludes non-breach risk, which is the risk to the affected areas that remains even if the dam or levee functions as intended. The classification scale ranges from 1 to 5, with 1 being the most urgent. Arkabutla is a DSAC 1 (High) rating. Dams with this rating are considered conditionally unsafe, with a moderate to high incremental risk. The USACE considers this level of risk to be unacceptable, except in unusual circumstances. It is necessary that USACE takes action to reduce the breach risk at Arkabutla Dam.

The purpose of this project is to reduce the likelihood of a breach occurring at Arkabutla Dam until long-term repairs can be completed. Installing additional relief wells and piezometers would further reduce pressure on the dam and allow for better monitoring of the site.

1.4 <u>Authority</u>

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source.

This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 89-298), the River and Harbor and Flood Control Act of

1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

Two alternatives including the proposed action were considered:

Alternative 1 - No Action Alternative 2 – Install Relief Wells and Piezometers at Arkabutla Dam

2.1 Alternative 1- No Action

NEPA requires that in analyzing alternatives to a proposed action, a federal agency must consider an alternative of "No Action." This No Action Alternative is the Future without Project (FWOP) which considers the impacts and predicts the environmental gains/losses if the proposed action is not implemented.

Under this alternative, no action would be taken, and additional relief wells with laterals and piezometers would not be installed. Without the additional relief wells there is a greater risk of a dam breach that would lead to flooding of downstream areas (Figure 2). This could result in losses to human life and severe damage to natural resources, personal and private property, and infrastructure. The No Action Alternative would fail to fulfill the purpose and need as described in Section 1.3.



Figure 2: Projected area that would be inundated with water if a dam breach were to occur at the top of active storage (Elevation 238.6 NAVD88) at Arkabutla Dam, DeSoto County, MS.

2.2 Alternative 2- Install Relief Wells and Piezometers at Arkabutla Dam

This alternative would involve constructing six new relief wells with laterals, installing eleven new piezometers at various locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the site while permanent repairs are made to the dam. Without the relief wells there would be an increased risk of the dam breaching and flooding the downstream areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area.



Figure 3: Arkabutla Dam Emergency Repairs Project Site Map, DeSoto County, MS.

EA #115 March 2024 Page | 5 U.S. Army Corps of Engineers Regional Planning and Environmental Division South Vicksburg District

3 AFFECTED ENVIRONMENT

This section describes the relevant existing biological, physical, economic, and social conditions in the proposed project areas, which are referred to under the NEPA process as the Affected Environment. The resources described in this section are those recognized as significant by laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public.

The USACE uses quantitative and qualitative analyses, as appropriate, to determine the level of potential impact from proposed alternatives. Based on the results of the analyses, this EA identifies whether a particular potential impact would be adverse or beneficial, and to what extent. The CEQ regulations also require that a proposed action's cumulative impact be addressed as part of a NEPA document. Cumulative impacts are discussed in Section 5.10 below.

3.1 Description of Project Area

The dam consists of an embankment, intake tower, and gated outlet works, an uncontrolled broad-crested ogee weir spillway, and two abutment closure dikes (Figure 4). The main embankment is constructed of rolled earth fill, and it is approximately 10,700 feet in length, including 3,500 feet in the length of the abutment dikes. It also contains approximately 4,500,000 cubic yards of earth fill material. The outlet works consist of a three-gated, reinforced concrete intake tower, a single reinforced concrete conduit, a reinforced concrete stilling basin, and an outlet channel. A service bridge connects the intake tower with the crown of the main embankment. The spillway, located in a natural saddle north of the dam, is an uncontrolled overflow spillway. It consists of a reinforced concrete approach apron, weir, chute, walls, and stilling basin as well as a riprap lined outlet channel. The spillway has overtopped twelve times since the dam began operation in 1943.

The authorized project purposes include flood control and recreation. There are no non-federal sponsor operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) responsibilities associated with the project. The Arkabutla Lake Project was designed by the Vicksburg District and construction started on 1 August 1940. The dam, outlet works, spillway, closure dikes, and appurtenances were completed on 1 June 1943.



Figure 4: Arkabutla Dam location and features, DeSoto County, MS.

3.2 Description of Watershed

The Yazoo is the largest river basin in Mississippi, with over 13,000 square miles draining all or parts of 30 counties. It makes up 30% of the state and is home to one-fifth of the population of Mississippi. Winding through this basin are about 25,000 miles of streams and rivers. The project is located in the Bluff Hills area. This is the hilly upland area of Yazoo River basin where the streams originate among oak and hickory forests, and where pastures dominate the rural landscape.

3.3 <u>Climate</u>

The climate in Mississippi has always been variable and climate change may intensify this historical pattern. Average state temperatures have varied substantially over the past century, with a warming trend since the late 1960s. Average rainfall has changed only a little, with summers becoming slightly drier and winters slightly wetter, and extreme rainfall events have become more frequent.

DeSoto County is in the northwestern corner of Mississippi, alongside the Mississippi River and Tennessee border, in an area referred to as the Delta Region. The climate in the area is characterized by humid subtropical conditions with temperate winters and long, hot summers. The month with the most precipitation is April, with an average rainfall of 5.1 inches, and the month with the least precipitation is August, with an average rainfall of 2.3 inches. The hot season lasts for 4 months, from May to September, with an average daily high temperature above 82°F. The hottest month of the year in DeSoto is July, with an average high of 90°F and low of 73°F. The cool season lasts for 2.9 months, from November to February, with an average daily high temperature below 57°F. The coldest month of the year in Hernando is January, with an average low of 34°F and high of 50°F. The study area is subject to periods of both drought and flood, and the climate rarely seems to truly exhibit "average" conditions.

Tropical storms and hurricanes are unlikely to affect the area since DeSoto County, MS is in a very low risk hurricane zone. Twenty-three hurricanes have been recorded in DeSoto County, MS since 1930. The largest was an unnamed hurricane in 1949 and the most recent hurricane was Rita in 2005.

3.4 <u>Geology</u>

The geology of the study area is heavily influenced by the Lower Mississippi River. Relief, like that in other parts of the Lower Mississippi River flood plain, ranges from level to sloping, with a large part being level or nearly level. Soils in the project area are mostly comprised of made land soils that were placed when the levee and dam were constructed. These soils are poorly drained, have very low permeability, and slopes of 0-8 percent. Part of the project area also contains Memphis silt loams that are highly eroded, well drained with high permeability, and have 17 to 40 percent slopes.

3.5 <u>Relevant Resources</u>

This section contains a description of relevant resources that could be impacted by the project. Table 1 provides summary information of the institutional, technical, and public importance of these resources.

The following relevant resources are discussed in this report: wetlands, terrestrial resources/wildlife, aquatic resources/fisheries, threatened and endangered species, water quality, air quality, greenhouse gas emissions, cultural resources, and environmental justice concerns.

The following resources have also been considered and found to not be affected by any alternative under consideration: coastal zone, essential fish habitat, beaches, navigation, prime or unique farmland, Gulf water bottoms, public use of lands, recreation, unique or rare wildlife habitat, Indian trust resources, traffic, and soundscapes/noise.

Table 1: Relevant Resources

Resource	Institutionally Important	Technically Important	Publicly Important	
Wetlands	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	Wetlands provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.	
Aquatic Resources/ FisheriesFish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968.		Aquatic resources/Fisheries are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.	
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	Wildlife is a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on the esthetic, recreational, and commercial value of wildlife.	
Threatened and Endangered Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.	
Cultural Resources	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.	
Air Quality	Clean Air Act of 1963, Mississippi Environmental Quality Act of 1983, Executive Order 13990.	State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS. Need to use science to reduce greenhouse gas emissions and bolster resilience to the impacts of climate change.	Virtually all citizens express a desire for clean air.	
Water Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and Mississippi State & Local Coastal Resources Act of 1978.	USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.	

Resource	Institutionally Important	Technically Important	Publicly Important
Recreation and Aesthetics	Federal Water Project Recreation Act of 1965 as amended, and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value to local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating.
Environment al Justice	Executive Orders 12898, 13990, & 14008, Federal Actions to Address Environmental Justice in Communities of Color and People Experiencing Poverty, and the Department of Defense's Strategy on Environmental Justice of 1995, & Tackling the climate crisis at home and abroad 2021.	The social and economic welfare of communities of color and people experiencing poverty may be positively or disproportionately impacted by the preferred plan.	Public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respects to environmental and human health consequences of federal laws, regulations, policies, and actions.
Greenhouse Gas Emissions	Executive Order 13990.	Need to use science to reduce greenhouse gas emissions and bolster resilience to the impacts of climate change.	Virtually all citizens express a desire for clean air.

4 EXISTING CONDITIONS

4.1 <u>Wetlands</u>

Inland wetlands are referred to as palustrine habitats or wetlands associated with riverine or lake systems. The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, emergent mosses or lichens, forest vegetation and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

(USFWS National Wetland Inventory https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/)

Most of the wetlands around Arkabutla Dam are downstream of the stilling basin and comprised of freshwater forested/ shrub habitat (Figure 5). The trees in these wetlands are characterized as deciduous and broad-Leaved deciduous with relatively wide, flat leaves that are shed during the cold or dry season. The canopy is normally leafless sometime during the year. Wetlands in the area are temporarily flooded for brief periods (from a few days to a few weeks) during the growing season, but the water table usually lies well below the ground surface for most of the season.



Figure 5: Arkabutla Dam Wetlands Map, DeSoto County, MS.

4.2 Aquatic Resources and Fisheries

4.2.1 Aquatic Resources

No aquatic resources occur within the actual project footprint. However, aquatic resources in the vicinity of the project area consist of Arkabutla Lake and the current Coldwater River channel downstream of the project area. The pool at Arkabutla Lake follows a Guide Curve each year, where the summer pool is held at 220 ft from 15 May through 31 August, and the winter pool is held at 210 ft (same as the conservation pool) from 1 December through 1 May. Transitional stages occur between these periods. Arkabutla Lake and the current channel support diverse forms of phytoplankton, zooplankton, aquatic insects, crustaceans, amphibians, reptiles, fish, and mollusks.

4.2.2 Fisheries

No fisheries occur within the project footprint. However, Arkabutla Lake and the Coldwater River nearby are home to a diverse array of fish species native to Mississippi waters, including Largemouth Bass (*Micropterus nigricans*), Smallmouth Bass (*Micropterus dolomieu*), Spotted Bass (*Micropterus punctulatus*), Bluegill (*Lepomis macrochirus*), Green sunfish (*Lepomis cyanellus*), Alligator Gar (*Atractosteus spatula*), Bream spp., Catfish spp., and Crappie spp. The main lake body, lake channels, and seasonal flooding of wooded areas provides spawning and feeding habitats for a many of these fish and other aquatic species.

In addition to fish, a variety of aquatic and semi-aquatic reptile and amphibian species are expected to inhabit the areas in and around the lake, river, and wetlands. Many species of aquatic turtles, watersnakes, salamanders, and frogs use these areas for shelter, feeding, and reproduction. Turtle species that are may be present in these aquatic habitats include the Alligator Snapping Turtle (*Macrochelys temminckii*), Common Snapping Turtle (*Chelydra serpentina*), River Cooter (*Pseudemys concinna*), Southern Painted Turtle (*Chrysemys picta dorsalis*), Red-eared Slider (*Trachemys scripta*), and Spiny Softshell Turtle (*Apalone spinifera*). Semi-aquatic snake wildlife such as species of garter snake, ribbon snake, watersnake, and pit viper are also likely present, utilizing the lake and its associated wetlands for reproduction and foraging. These aquatic habitats are also used by the American Toad (*Anaxyrus americanus*), Spring Peeper (*Pseudacris crucifer*), Green Frog (*Lithobates clamitans*), Bullfrog (*Lithobates catesbeianus*), and Mississippi Slimy Salamander (*Plethodon mississippi*).

4.3 Terrestrial Resources and Wildlife

4.3.1 Terrestrial Resources

Much of the terrestrial habitat in the surrounding area is forested, but other areas consist of a low elevation occasionally flooded herbaceous/shrub zone. The forest habitat near the project area consists of oaks, cottonwood, sycamores, elms, maples and ashes including black willow (*Salix nigra*), cottonwood (*Populus deltoides*), river birch (*Betula nigra*), American beech (*Fagus grandifolia*), American elm (*Ulmus americana*), and water hickory (*Carya aquatica*), in the overstory, with juvenile overstory species, deciduous holly (Ilex decidua), and vines and herbaceous species, greenbriars (*Smilax spp.*), and southern dewberry (*Rubus trivialis*), in the understory.

4.3.2 <u>Wildlife</u>

Wildlife in vicinity of the proposed actions includes those typical for the southern United States and the usual compliment of wildlife species pursued by the public such as white-tailed deer (*Odocoileus virginianus*), squirrels (*Sciuridae spp.*), rabbits (Sylvilagus spp.), as well as other terrestrial mammals such as raccoons (*Procyon lotor*). Various species of birds including the Northern Bobwhite, Great Blue Heron, and Red-eyed Vireo may also occur in the project area. Multiple species of reptiles and amphibians including the American Box Turtle (*Terrapene carolina*), Ring-necked snake (*Diadophis punctatus*), Hognose Snake (*Heterodon platirhinos*), Timber Rattlesnake (*Crotalus horridus*), and those listed in Fisheries (Section 4.2.2) can be found within the forested areas and utilizing the edges of the lake and river for foraging, reproduction, and shelter.

4.4 Threatened, Endangered, and Protected Species

In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, an official list of species and critical habitats potentially occurring in the vicinity of the proposed action areas was updated and acquired from the USFWS Information for Planning and Conservation (IPaC) website at (<u>https://ecos.fws.gov/ipac/</u>) on 27 August 2024 (Attachment 1). The federally listed species that could occur in the project area are as follows:

Northern Long-eared Bat (Myotis septentrionalis)	Endangered
Tricolored Bat (Perimyotis subflavus)	Proposed Endangered
Alligator Snapping Turtle (Macrochelys temminckii)	Proposed Threatened
Monarch Butterfly (Danaus plexippus)	Candidate

The Northern Long-eared Bat (NLEB) is an endangered mammal species found throughout the continental US. During summer, NLEBs roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. The NLEB seems opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. NLEBs have also been found, albeit rarely, roosting in structures like barns and sheds. NLEBs are thought to predominantly overwinter in hibernacula that include caves and abandoned mines that have relatively constant, cooler temperatures, high humidity, and no strong currents. NLEBs are nocturnal foragers and feed on moths, flies, leafhoppers, caddisflies, arachnids, and beetles, with diet composition differing geographically and seasonally. Foraging occurs primarily 3-10 ft above the ground, above the understory but under the canopy on forested hillsides and ridges, rather than along riparian areas. Foraging also takes place over small forest clearings and water, and along roads. There are countless stressors affecting NLEB, however the primary factor influencing the viability of the NLEB is white-nose syndrome.

The tricolored bat is a small insectivorous bat that is distinguished by its unique tricolored fur and often appears yellowish to nearly orange. The once common species is wide ranging across the eastern and central United States and portions of southern Canada, Mexico, and Central America. During the winter, tricolored bats are often found in caves and abandoned mines, although in the southern United States, where caves are sparse, tricolored bats are often found roosting in road-associated culverts where they exhibit shorter torpor bouts and forage during warm nights. During the spring, summer, and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees, but may also be found in Spanish moss, pine trees, and occasionally human structures. Tricolored bats mate during spring, fall, and sometimes in the winter. Maternity colonies begin forming in mid-April and females bear 1 to 2 pups by late May to mid-July. Tricolored bats face extinction due primarily to the range wide impacts of white-nose syndrome, a deadly disease affecting cavedwelling bats across the continent. White-nose syndrome has caused estimated declines of more than 90 percent in affected tricolored bat colonies across the majority of the species range.

The alligator snapping turtle is proposed to be listed as endangered and is one of the largest freshwater turtles in the world, with adults sometimes exceeding two feet in shell length and a weight that can reach nearly 250 pounds. Its size and appearance give this creature a prehistoric likeness. The back of the shell is distinctly jagged, and the top of the shell (carapace) has three rows of "spikes" or knobs running lengthwise along entire length of the shell. These turtles inhabit large rivers, sloughs, and oxbow lakes where they spend almost their entire lives in water, normally venturing onto land only to lay eggs. While beneath the water's surface, these turtles are able to use their unique worm-like appendage located on the bottom of their mouth to lure in potential prey.

Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant and larvae emerge after two to five days. The main monarch host plant is Common Milkweed (*Asclepias syriaca*), but other common hosts include Swamp Milkweed (*Asclepias incarnata*), Butterflyweed (*Asclepias tuberosa*), Whorled Milkweed (*Asclepias verticillata*), and Poke Milkweed (*Asclepias exaltata*). Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites.

4.5 <u>Water Quality</u>

The Clean Water Act (CWA) is a piece of environmental legislation in the United States, enacted in 1972 to address the widespread degradation of the nation's water bodies. Its primary aim is to restore and maintain the integrity of the nation's waters by regulating pollutant discharges, setting water quality standards, and ensuring the protection of aquatic ecosystems. The CWA empowers the Environmental Protection Agency (EPA) and state agencies to enforce stringent controls over industrial, municipal, and agricultural waste, thereby safeguarding public health and preserving natural habitats.

Water Quality Standards (WQS) are the foundation of the Clean Water Act and water pollution control programs are designed to protect the beneficial uses of the water resources. Each state has the responsibility to set water quality standards that protect these beneficial uses, also called "designated uses." The Mississippi Department of Environmental Quality (MDEQ) is responsible for setting water quality standards to protect designated uses and for issuing state environmental permits. Mississippi waters are designated for a variety of uses including recreation, public water supply, ephemeral water bodies, fish and wildlife area, and shellfish harvesting. Arkabutla Lake is designated for recreational use.

Section 303(d) of the Clean Water Act requires states to identify water bodies that are considered impaired due to not meeting one or more applicable water quality standards. According to the EPA's Waterway website Arkabutla Lake, its watershed, and the Coldwater River are not listed as impaired and meet all water quality standards. On the watershed health scale, where 0 is unhealthy and 1 is healthy, Arkabutla Dam's watershed has a score of 0.71.

4.6 <u>Air Quality</u>

The Clean Air Act of 1963 requires EPA to designate National Ambient Air Quality Standards (NAAQS). The EPA has identified standards for six criteria pollutants: ozone, particulate matter (PM10 = less than 10 microns; and PM2.5 = less than 2.5 microns in diameter), sulfur dioxide, lead, carbon monoxide, and nitrogen dioxide. The air quality of the proposed project location is considered "good". Currently, DeSoto County, MS is in attainment, meets all air quality standards, and has a current air quality index value of 40.

4.7 <u>Cultural Resources</u>

Historic properties in the project's area of potential effect (APE), were identified based on a review of the National Register of Historic Places (NRHP), Mississippi Department of Archives and History's (MDAH, hereafter referred to as MS SHPO) Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports. Within the vicinity of the project's APE, the bottom lands of the Coldwater River, as well as those of both Hurricane and Wolf creeks are rich in mostly prehistoric cultural remains, mostly across natural elevations in the floodplain (lakebed) or along creekbanks and lake shorelines as evidenced by large-scale cultural resources surveys of the Lake in the second half of the 20th century (Broyles, Thorne, and Owens 1982; Haag 1952; Johnson 1996).

According to existing data, there are four (4) previously recorded archaeological sites in the project vicinity, though none fall within the APE. Three of these sites possess generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 2). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment efforts. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and recommended eligible for listing to the NRHP under Criterion D for its potential to contribute the prehistory of the area. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam and Reservoir (Historic Structures Inventory No. 137-ARK-1002), which includes the existing earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin, recommended under Criteria A (association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936) and C (hydraulic-fill dam technology and for engineering efforts associated with flood control efforts). Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap

with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (Table 3). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 2: Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	Period(s)	Date Recorded	NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
22Ds548	Pre-Contact Native American	1980	Ineligible
22Ds549	Pre-Contact Native American	1980	Ineligible
22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 3: Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No. Title		Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi	Jay K. Johnson - private	01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi	Bryan S. Haley - private	01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi	Jay K. Johnson - private	04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013

Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13-0711 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014
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4.8 Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. The Department of Defense's Strategy on Environmental Justice, specifically Executive Orders No. 12898, 59 Fed. Reg. 7629 (11 Feb. 1994), No. 13990 (20 Jan. 2021), and No. 14008, 86 Fed. Reg. 7619 (20 July 2021), directs federal agencies to identify and address any adverse human health or environmental effects, as well as climate crisis issues, caused by federal actions that have a disproportionately high effect on communities of color and/or people/households with incomes below the federal poverty line.

The Justice40 Initiative implements the guidance set forth in Executive Order 14008 (Tackling the Climate Crisis at Home and Abroad) and mandates that "40 percent of the overall benefits" of federal investments from covered programs should flow to disadvantaged / environmental justice communities. This demonstrates a shift from minimizing adverse impacts to sharing benefits.

The CEQ's Climate and Economic Justice Screening Tool (CEJST) was used to locate people/households with income below the federal poverty line and racial and ethnic groups in the project area. According to the CEQ's CEJST tool part of the area in which the project would be located has been identified as disadvantaged (Figure 6). The census tracts within Tate county are considered disadvantaged communities because they meet at least one burden threshold and the associated socioeconomic threshold. Burden thresholds in the area include the following: climate change, health (diabetes and low life expectancy), transportation barriers, and low income. Most of the proposed actions would take place within DeSoto County and census tracts that are not considered disadvantaged.



Figure 6: CEJST Map showing that part of the project area is identified as disadvantaged in Tate County, MS.

Additionally, existing Environmental Justice conditions were obtained using the EJ Screen Mapping Tool (Attachment 2). There are no residents located directly within the project area, so a 5-mile buffer was added to the EJ Screen analysis. Within the 5-mile radius of the proposed actions approximately 27% of the 3,666 residents have incomes below the federal poverty line (Figure 7). Communities of color account for approximately 24% of the population within the 5-mile radius of the project area.

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES			-		
Particulate Matter (µg/m³)	8.66	9	22	8.08	63
Ozone (ppb)	61.2	57.9	95	61.6	51
Diesel Particulate Matter (µg/m ³)	0.121	0.136	52	0.261	22
Air Toxics Cancer Risk* (lifetime risk per million)	30	30	0	25	5
Air Toxics Respiratory HI*	0.3	0.38	0	0.31	31
Toxic Releases to Air	950	2,100	78	4,600	58
Traffic Proximity (daily traffic count/distance to road)	2.5	44	20	210	7
Lead Paint (% Pre-1960 Housing)	0.086	0.16	41	0.3	33
Superfund Proximity (site count/km distance)	0.026	0.069	49	0.13	24
RMP Facility Proximity (facility count/km distance)	0.1	0.33	44	0.43	29
Hazardous Waste Proximity (facility count/km distance)	0.11	0.31	44	1.9	21
Underground Storage Tanks (count/km ²)	0.12	2.9	30	3.9	29
Wastewater Discharge (toxicity-weighted concentration/m distance)		0.023	93	22	69
SOCIOECONOMIC INDICATORS					
Demographic Index	25%	44%	26	35%	43
Supplemental Demographic Index	13%	18%	27	14%	53
People of Color	24%	45%	31	39%	42
Low Income	27%	43%	27	31%	50
Unemployment Rate	6%	7%	59	6%	66
Limited English Speaking Households		1%	0	5%	0
Less Than High School Education		15%	37	12%	58
Under Age 5		6%	53	6%	55
Over Age 64		17%	61	17%	62
Low Life Expectancy	22%	23%	39	20%	74

*Dises particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics of the United States. This effort aims to prioritize air toxics, emission sources, and locations of interview of the United VI. It is important to remember that the air toxics data provide broad enablth risks over geographic areas of the country, not definitive risks to specific individuals or locations. Contener risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to roundino. More information on the Air Toxics Data Update can be found at https://www.eau.ou/hums/air-toxics/data-update.

Figure 7: EJ Screen Results within a 5 mile radius of Arkabutla Dam, DeSoto County, MS.

4.9 Hazardous, Toxic, and Radioactive Waste

To evaluate if potential HTRW concerns are present within the project area, a review of EPA's environmental databases of known facilities permitted to handle, treat, store, or dispose of hazardous waste was performed. In addition, a review of reported spills, remediation projects and accidental releases of hazardous materials was also performed. The review was restricted to an area within the minimum search distances reported in the American Society for Testing and Materials, E1527-13, "Environmental Site Assessments: Phase I Environmental Site Assessment Process".

The database review was conducted utilizing EPA's EnviroMapper online query system for regulated facilities. A query of EPAs listed facilities for Superfund Sites (National Priorities List sites), Resource Conservation and Recovery Act sites (RCRA) and Comprehensive Environmental Response, Compensation and Liability Act sites (CERCLA), and National Pollutant Discharge Elimination System sites (NPDES) was performed on 28 August 2024.

One environmental program within a half mile buffer of the proposed work area was identified. The database listed the USACE owned Bayou Point recreational area as a facility maintaining an NPDES permit. This facility is not believed to impact the intended project.

5 ENVIRONMENTAL CONSEQUENCES

5.1 <u>Wetlands</u>

Future Conditions with No-Action

The No Action Alternative would not have direct impacts on wetlands around Arkabutla Lake and the Coldwater River during the short-term since the currently existing conditions would be maintained. However, the risk of a breach occurring would remain and is expected to slightly increase over time due to continued degradation of the outlet works conduit and stilling basin. If the dam were to breach, the flooding would result in a large reduction in lake pool area that would significantly adversely impact wetlands around the lake (Figure 8). With a severely reduced pool area, the wetlands would likely be inundated with water less often or not at all which would lead to a decline in wetland health over time. These impacts would be expected to continue until the dam could be repaired and the water level returned to normal.



Figure 8: Arkabutla Lake pool levels and associated acreages of aquatic habitat in DeSoto County, MS.

Future Conditions with the Proposed Action

The proposed actions would not impact wetlands. There are no wetlands within the project's footprint, no fill material would be discharged, and no tree clearing would occur. There are, however, occasionally flooded wetlands adjacent to the project site, but these would not be impacted by the proposed actions since all construction would take place within the existing boundaries of the dam.

5.2 Aquatic Resources and Fisheries

Future Conditions with No Action

The No Action Alternative would not have direct impacts on aquatic resources or fisheries around Arkabutla Lake and the Coldwater River during the short-term since the currently existing conditions would be maintained. However, the risk of a breach occurring would remain and is expected to slightly increase over time due to continued degradation of the outlet works conduit and stilling basin. If the dam were to breach, the flooding would result in a large reduction in lake pool area (Figure 8) that would adversely impact fish and the aquatic environment around the lake. With a severely reduced pool area, there would be much less habitat for fish and other aquatic species to utilize. This would lead to increased levels of mortality and high levels of stress within individuals as competition for habitat and food increases. In addition, if the water drains from the lake too quickly high mortality rates for aquatic species would be likely. With a shallower lake pool, the aquatic habitat is also expected to continue until the dam could be repaired and the water level returned to normal.

Future Conditions with the Proposed Action

The proposed actions would not impact the aquatic habitat or fisheries. No work would take place within the water of the Coldwater River or Arkabutla Lake. All construction would be conducted on land within the existing dam footprint. The small amount of dirt that is removed during drilling would be spread in a thin layer around the new relief wells and would not impact the aquatic environment or fisheries.

5.3 Terrestrial Resources and Wildlife

Future Conditions with No-Action

The No Action Alternative would not have direct impacts on wildlife and terrestrial habitats around Arkabutla Lake and the Coldwater River during the short-term since the currently existing conditions would be maintained. However, the risk of a breach occurring would remain and is expected to slightly increase over time due to continued degradation of the outlet works conduit and stilling basin. If the dam were to breach, the flooding would significantly adversely impact wildlife and terrestrial resources around the lake. Many terrestrial habitats downstream of the dam would be flooded and possibly destroyed and wildlife in the flood area that cannot quickly escape would experience high mortality rates. In addition, due to the reduced pool size, wetlands around the lake would be inundated with water less often or not at all and wildlife would have to likely travel further and across exposed lakebed areas to access water. These impacts would be significant and temporary if the impacted areas are left to regrow after the damage.

Future Conditions with the Proposed Action

The proposed actions would have minimal impacts on the terrestrial habitat in the project area. No tree clearing would be required for construction since all work takes place within the existing dam structures and ROW. The small amount of dirt that is removed during drilling would be spread in a thin layer on the ground around the new relief wells.

Impacts to wildlife in the project area would be temporary and minimal. Terrestrial species within and around the construction area at the dam may experience minor disturbances due to the noise generated by construction. Mobile wildlife and would likely relocate during construction activities; however, these species are expected to return to normal utilization of the area after construction is complete.

5.4 <u>Threatened, Endangered, and Protected Species</u>

Future Conditions with No-Action

The no action alternative would not have a direct impact on threatened and endangered species since the existing conditions would be maintained.

Future Conditions with the Proposed Action

USACE completed Section 7 consultation on 27 August 2024 through USFWS's IPaC website (Attachment 1). USACE made the following determinations related to project effects on threatened and endangered species that could possibly occur in the project area:

Northern Long-eared Bat (Myotis septentrionalis)	May Affect but Not Likely to Adversely Affect
Tricolored Bat (Perimyotis subflavus)	May Affect but Not Likely to Adversely Affect
Alligator Snapping Turtle (Macrochelys temminckii)	No Effect
Monarch Butterfly (Danaus plexippus)	No Effect

As part of the IPaC process a NLEB range wide determination key was completed (Attachment 3) and concurred with USACE's determination that the proposed actions of this project may affect but are not likely to adversely affect the NLEB. Due to similar habitat use and life history traits the tricolored bat was also given a determination of may affect but not likely to adversely affect. Since no tree clearing would occur bats are unlikely to be impacted by the proposed actions. Noise disturbances during construction may cause minor temporary impacts to bats within the forested area nearby. Due to the increased noise bats may not utilize this area during construction but would return after construction is complete.

There would be no dredging and the project would not occur within the Coldwater River or Arkabutla Lake. Due to this lack of habitat and water within the project area, USACE determined the proposed actions would have No Effect on the alligator snapping turtle.

Due to lack of useable habitat within the project area, USACE determined that the proposed actions would have No Effect on the monarch butterfly.

Therefore, based on the current species review, the lack of habitat in the project area, and a site visit performed by a USACE biologist, it is USACE's determination that the proposed actions are unlikely to have any adverse effects on federal-listed species.

5.5 <u>Water Quality</u>

Future Conditions with No-Action

The No Action Alternative would not have direct impacts on water quality at Arkabutla Lake and the Coldwater River in the short-term since the existing conditions would be maintained. However, the risk of a breach would remain and is expected to slightly increase over time due to continued degradation of the outlet works, conduit, and stilling basin. If the dam were to breach, the flooding would result in a large reduction in lake pool level and area that would significantly adversely impact Arkabutla Lake's water quality. The shallow lake pool would likely experience increased temperatures and reduced dissolved oxygen that could impair aquatic life. These impacts would be expected to continue until the dam could be repaired and the water level returned to normal.

Future Conditions with the Proposed Action

There is no water in the project area and the proposed actions would not impact water quality. Water quality on the nearby Coldwater River and in Arkabutla Lake would also not be impacted by the proposed actions. No work would take place within these bodies of water. All construction would be setup and completed on the land surrounding the dam and no dirt or debris generated by drilling the relief wells would be disposed of within the Coldwater River or Arkabutla Lake. There are no impaired bodies of water in the project area. There are no scenic and wild rivers within the project area.

5.6 <u>Air Quality</u>

Future Conditions with No-Action

Under the No Acton Alternative, air quality at the project location would remain similar to existing conditions. No additional air quality impacts are anticipated, and sources of impairment would remain unchanged.

Future Conditions with the Proposed Action

Air quality would be minimally and temporarily impacted during construction due to the use of internal combustion engines and heavy machinery that produce greenhouse gas emissions. Effects to air quality from construction would be localized, minor, and short term, limited to the hours and site of construction. These impacts would not be expected to violate any state or federal standards or cause the region to be classified as being in nonattainment. Furthermore, the climatic conditions of the region favor rapid dispersal of the pollutants and thus would not allow concentrations to accumulate.

5.6.1 Greenhouse Gas Emissions

The Council of Environmental Quality (CEQ), CEQ-2022-0005, on 9 January 2023 introduced the interim guidance on Greenhouse Gas (GHG) and how agencies are able to compute GHG and the social cost for their projects. The USACE developed a methodology to analyze the components for GHG and incorporate them within National Environmental Policy Act (NEPA) documents. The components that are analyzed within GHG are Carbon dioxide (CO2), Methane (CH4), and Nitrous Oxide (N20). Primary sources of CO2 can be natural sources like decomposition of organic material and anthropogenic sources like burning of fossil fuel (Carbon Dioxide 101, 2023). For CH4, emissions can come from a variety of anthropogenic processes involving both flora and fauna sources (Crutzen etc all, 1986). For N20, a majority of the point source revolves around agricultural processes: fertilization (Nitrous Oxide Emissions, 2023). For GHG, CO2 is the primary contributor to GHG and climate change, followed by CH4 and N20.

Within this evaluation, the following alternatives were considered for GHG emission: No Action, and Alternative 2. The total GHG emissions for the lifetime of the project was calculated using the type, quantity, horsepower, total hours, and associated emission factors of the equipment used for construction. The social cost of greenhouse gas emissions (SC-GHG) was calculated for each project alternative by summing the individual emissions from the major greenhouse gas pollutants CO2, CH4, and N2O, and then multiplying by the social cost of each pollutant for the year in which they were generated using the tables from the Interagency Working Group on Social Cost of Greenhouse Gases (IWGSC) report as established by Executive Order 13990 to provide interim updated social costs values, with a 3% discount rate (IWG 2021). Social cost (SC) was estimated using the below formula to translate the climate impact to the proposed metric of dollars.

$$SC - GHG = CO_2 * SC - CO_2 + CH_4 * SC - CH_4 + N_2O * SC - N_2O$$

Where:

 $SC - GHG = the \ social \ cost \ of \ greenhouse \ gas \ emissions \ in \ dollars =$

= total carbon dioxide emissions in metric tons CO_2 = total methane emissions in metric tons CH_4 = total nitrous oxide emissions in metric tons N_2O = social cost of carbon dioxide $SC - CO_2$ = social cost methane $SC - CH_4$ = social cost of nitrous oxide $SC - N_2O$

Future Conditions with No Action

The No Action Alternative was based on the premise if relief wells were not installed, and the dam remained in its current state. There would not be indirect emissions from the no action plan. The below table outlines the proposed GHG emissions of the No Action alternative.

Total GHG Emissions for No Action Alternative								
Emissions	CO ₂ CH ₄		N ₂ O	CO _{2eq}				
Total (Metric Tons)	0	0	0	0				

Future Conditions with the Proposed Action

There would be direct emissions from construction activities for Alternative 1. The different components of port expansion were evaluated.

Total GHG Emissions from Alternative 2- Install Relief Wells								
Emissions	CO2	CH₄	N ₂ O	CO _{2eq}				
Total (Pounds)	19	0	0	31				

Comparison of No Action and Alternative 1:

Social costs were computed for the alternatives within this analysis and were compared in the below table.

Yearly Total Social Costs of Greenhouse Gases (2024 Dollars)										
	CO ₂	CH₄	N ₂ O	Total						
No-Action Alternative	\$0	\$0	\$0	\$0						
Proposed Action	\$2,373	\$93	\$1,380	\$3,846						

5.7 Cultural Resources

Future Conditions with No-Action

Without implementation of the proposed action, the conditions within the recreational environment would continue as they have in the past and would be dictated by the historic land use patterns and processes that have dominated the area since its construction in 1941. Additionally, as the existing historic resource (MDAH Historic Structures Inventory No. 137-ARK-1002) continues to age, the risk for additional structural compromises would continue, which could result in further loss of structural integrity, thereby adversely impacting the

characteristics/elements that qualify the property as historic. Furthermore, a loss of structural integrity, especially in the form of a breach, could impact downstream cultural resources due to the increased threat of erosion and scour.

Future Conditions with the Proposed Action

Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing cultural resources surveys investigations conducted across the APE constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of MDAH Historic Structure Inventory No. 137-ARK-1002 that serve as the basis for the NRHP eligibility recommendation of this resource; therefore, no further cultural resources investigation is recommended. Based on the information presented here, USACE MVK is making a determination of **No Adverse Effect to Historic Properties**.

In accordance with 36 CFR § 800.5(c), USACE contacted the Mississippi State Historic Preservation Office (MS SHPO), and 15 Tribal governments including: Absentee-Shawnee Tribe of Indians of Oklahoma, The Alabama-Coushatta Tribe of Texas, The Alabama-Quassarte Tribal Town, The Caddo Nation of Oklahoma, The Chickasaw Nation, Chitimacha Tribe of Louisiana, The Choctaw Nation of Oklahoma, The Coushatta Tribe of Louisiana, The Jena Band of Choctaw Indians, The Mississippi Band of Choctaw Indians, The Muscogee (Creek) Nation, The Quapaw Nation, The Seminole Nation of Oklahoma, The Seminole Tribe of Florida, The Tunica-Biloxi Tribe of Louisiana, and The United Keetoowah Band of Cherokee Indians on April 23, 2024, regarding review of and concurrence with this determination. Concurrence with this determination was received from the Quapaw Nation on April 30, 2024, and the MS SHPO on May 16, 2024 (Attachment 4).

5.8 Environmental Justice

Future Conditions with No-Action

The no action alternative would not have direct impacts on disadvantaged communities in the short-term since the existing conditions would be maintained. However, the risk of a breach occurring would remain and is expected to slightly increase over time due to continued degradation of the outlet works conduit and stilling basin. If the dam were to breach, the flooding would result in direct impacts to multiple disadvantaged communities downstream of the dam (Figure 2). The flooding from a breach would likely result in damage to property and the loss of human life within these communities.

Future Conditions with the Proposed Action

Executive Orders No. 14008, No. 13990, and No. 12898 were considered while the project was analyzed in this EA. The CEQ's CEJST tool identified part of the project area as being disadvantaged. However, most of the relief wells being installed would occur within the non-disadvantaged area. Due to most of the work being completed outside of the disadvantaged area, the lack of residents within the project area, and the lack of overall project impacts, the USACE determined that the proposed actions would not result in adverse human health or environmental impacts to disadvantaged communities or cause other Environmental Justice concerns. All communities in the vicinity of the dam would benefit from a reduced dam safety risk.

5.9 Hazardous, Toxic, and Radioactive Waste

One environmental program within a half mile buffer of the proposed work area was identified. The database listed the USACE owned Bayou Point recreational area as a facility maintaining an NPDES permit. This facility is not believed to impact the intended project.

Due to the nature of the work and the project location it was determined that an HTRW site reconnaissance was not needed. There is little reason to believe an HTRW risk would be encountered during this project.

5.10 <u>Cumulative Impacts Analysis</u>

Cumulative effects as described by the Council on Environmental Quality (CEQ) for implementing the NEPA are "the impact on the environment which results from the incremental impact of the actions when added to other past, present, and reasonably foreseeable future action regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" [40 CFR § 1508].

5.10.1 Spatial and Temporal Boundaries

The geographic boundary for the action area was defined as all lands and waters within the USACE project site boundaries including Arkabutla Dam. The temporal boundary for the cumulative effects analysis is the past 10 years, the present, and the next 50 years. Proposed activities would be implemented within the next year (funding dependent) and effects of these actions would be most evident during implementation and immediately upon completion.

5.10.2 Description of Cumulative Effects Analysis Area

The Cumulative Effects Analysis Area includes the dam embankment, intake tower, current gated outlet works, an uncontrolled broad-crested ogee weir spillway, and two abutment closure dikes. Main land cover categories include built areas, forest, cropland, and water.

5.10.3 Past, Present, and Reasonably Foreseeable Future Actions

Past activities that may affect resources within the action area include passive and active management of the dam structures. Maintenance and periodic inspections of dam structures would have occurred periodically in the past and are expected to continue occurring in the future. With the exception of the proposed IRRM activities in this EA, reasonably foreseeable future activities would be those described for past and present activities. If no action is taken there would continue to be a higher risk of future dam breaches and flooding of the surrounding areas.

5.10.4 Cumulative effects Determination

Adverse cumulative effects are not anticipated due to the installation of the relief wells with laterals and piezometers. The USACE determined no adverse cumulative effects since the proposed actions would result in minimal or no adverse impacts to Arkabutla Dam and the surrounding environmental resources. Beneficially, the project would reduce the dam safety risks for the local residents and downstream populations to acceptable levels.

No Action Alternative Future Effects Compared to Existing Conditions (Non-breach) BENEFICIAL ADVERSE					tive to Ex each)	isting RSE	Symbols: X = Long-Term Effect T = Temporary Effect C = Cumulative Impact	Proposed Alternative Effects of Action Alternatives to N Action Effects (Effects of Project BENEFICIAL ADVERSE						o No ect) SE
SIGNIFICANT	SUBSTANTIAL	MINOR	NO EFFECT	MINOR SUBSTANTIAL SIGNIFICANT		SIGNIFICANT	Affected Resource	SIGNIFICANT	SUBSTANTIAL	MINOR	NO EFFECT	MINOR	SUBSTANTIAL	SIGNIFICANT
							A. Physical Effects							
			Х				Topography, Geology, & Soils				Х			
			х				Land Use/Land Cover				х			
			Х				Prime Farmland				Х			
_			Х				Noise					Т		
			Х				Water Quality				Х			
			Х				Air Quality					Т		
			Х				Climate				Х			
			Х				Hazardous Waste				Х			
							B. Biological Effects							
			Х				Aquatic Habitat				Х			
			Х				Terrestrial Habitat				Х			
			Х				Federally-listed Species					Т		
							B. Social Effects							
			Х				Aesthetics				х			
			Χ				Recreation				Х			
			Х				Cultural Resources, Historic Prop.				Х			
			Χ				Tribal Resources				Χ			
		Environmental Justice				Х								

Table 4: Summary of Impacts for the No Action Alternative and Alternative 2
6 COORDINATION

Notification of this Draft Environmental Assessment and unsigned Finding of No Significant Impact (FONSI) will be sent to interested officials, agencies, organizations, and individuals for a public review and comment period before a FONSI signature is received. Additionally, an electronic copy will be available on the U.S. Army Corps of Engineers Vicksburg District's website during the public review period at:

https://www.mvk.usace.army.mil/Missions/Programs-and-Project-Management/Regional-Planning-Environment-Division-South/

Please note that the Finding of No Significant Impact will be unsigned during the public review period. These documents are to be signed into effect only after having carefully considered any comments that are received as a result of the public review.

To assure compliance with the National Environmental Policy Act, Endangered Species Act, and other applicable environmental laws and regulations, coordination with the following agencies has been completed:

U.S. Fish and Wildlife Service EPA, Region IV Mississippi Department of Wildlife, Fisheries, and Parks Mississippi Department of Environmental Quality Mississippi State Historic Preservation Officer (SHPO) Advisory Council on Historic Preservation

7 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed project was achieved through coordination of this draft EA and draft FONSI with all appropriate agencies, organizations, and individuals. Compliance with environmental laws can be found below in Table 5.

Federal Policy	Compliance Status
National Environmental Policy Act, 42 USC 4321-4347	Partial ¹
Water Resources Development Acts of 1986, 1990, 2000 and 2007	Full
Migratory Bird Treaty Act of 1918, 16 USC 703-712	Full

Table 5: Project Compliance with Environmental Laws.

Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC 9601-9675	Full
Resource Conservation and Recovery Act, 42 USC 6901-6987	Full
Farmland Protection Policy Act, 7 USC 4201-4208	Full
Endangered Species Act, 16 USC 1531-1543	Full
National Historic Preservation Act, 16 USC 470 et seq.	Full
Noise Control Act, 42 USC 7591-7642	Full
Clean Air Act, 42 USC 7401-7542	Full
Prevention, Control, and Abatement of Air and Water Pollution at Federal Facilities (EO 11282 as amended by EOs 11288 and 11507)	Full
Protection and Enhancement of the Cultural Environment (EO 11593)	Full
Floodplain Management (EO 11988 as amended by EO 12148)	Full
Protection of Wetlands (EO 11990 as amended by EO 12608)	Full
Protection and Enhancement of Environmental Quality (EO 11991)	Full
Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898)	Full
Protection of Migratory Birds (EO 13186)	Full
Bald and Golden Eagle Protection Act, 42 USC 4151-4157	Full
Clean Water Act, 33 USC 1251-1375	Full
Rivers and Harbors Act, 33 USC 401-413	Full
Fish and Wildlife Coordination Act, 16 USC 661-666c	Full

¹ Full compliance after submission for public comments and signing of FONSI.

8 PREPARED BY

EA #115 and the associated FONSI were prepared by Taylor Piefke, Biologist, U.S. Army Corps of Engineers, New Orleans District, Regional Planning and Environment Division South, with relevant sections prepared by: John Underwood - Cultural Resources and Ryan Horton- HTRW. The address of the preparers is:

U.S. Army Engineer District, Vicksburg Regional Planning and Environment Division South ATTN: CEMVN-PDN-UDP 4155 Clay Street Vicksburg, Mississippi 39183-3435

9 ATTACHMENTS

- 1. USFWS IPaC Species List
- 2. EJ Screen Report
- 3. NLEB Concurrence
- 4. Section 106 Correspondence

10 REFERENCES

Albertson, Eric S.

2006 Archaeological Site Delineation of the Kelley's Crossing Site (22TA684), Kelley's Crossing Recreation Area, Arkabutla Lake, Tate County, Mississippi. Report submitted to the U.S. Army Corps of Engineers, Vicksburg District. Report on file at the MDAH, Jackson, Mississippi (MDAH Report No. 06-434).

Broyles, B.J., R.M. Thorne, and H.P. Owens

1982 A Cultural Reconnaissance of the Four Corps Owned Lakes in Mississippi: Grenada Lake, Enid Lake, Sardis Lake and Arkabutla Lake. Oxford: University of Mississippi. Report on file at the MDAH, Jackson, Mississippi (MDAH Report No. 82-087).

Haag, W.G.

1955 Archaeological Survey of the Grenada Reservoir in Mississippi. Ms. on file, Department of Anthropology, University of Mississippi.

Johnson, Jay K.

1996 A Cultural Resource Studies in Nine Watersheds: Demonstration Erosion control Project, Yazoo Basin, Mississippi. Report submitted to the U.S. Army Corps of Engineers, Vicksburg District Under Contract DACW38-90-C-0044. Report on file at the MDAH, Jackson, Mississippi (MDAH Report No. 96-189).

2009 Cultural Resources Survey of the Tulane Road and Rifle Range Road Timber Management Areas, De Soto and Tate Counties, Mississippi. Report submitted to the U.S. Army Corps of Engineers, Vicksburg District. Report on file at the MDAH, Jackson, Mississippi (MDAH Report No. 09-1246).



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mississippi Ecological Services Field Office 6578 Dogwood View Parkway, Suite A Jackson, MS 39213-7856 Phone: (601) 965-4900



In Reply Refer To: Project Code: 2024-0027957 Project Name: Arkabutla Dam Interim Risk Reduction Measures 08/27/2024 18:52:35 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/whatwe-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. Please email consultation requests to MSFOSection7Consultation@fws.gov. Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Mississippi Ecological Services Field Office

6578 Dogwood View Parkway, Suite A Jackson, MS 39213-7856 (601) 965-4900

PROJECT SUMMARY

Project Code:2024-0027957Project Name:Arkabutla Dam Interim Risk Reduction MeasuresProject Type:Dam - Maintenance/ModificationProject Description:This project proposes implementing emergency intermediate risk
reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam
being breached while long-term dam repairs are completed. The proposed
IRRMs would require constructing six new relief wells with piezometers,
installing new piezometers at various locations, and updating currently
existing relief wells with new piezometers. All work would be completed
within Arkabutla Dam's right-of-way (ROW). No tree clearing would
occur.

Project Location:

The approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@34.75698655,-90.12578422105231,14z</u>



Counties: DeSoto and Tate counties, Mississippi

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/F7BZPBVMDZC7VPCACV3GNYVP6M/</u> <u>documents/generated/7127.pdf</u>	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/10515</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/F7BZPBVMDZC7VPCACV3GNYVP6M/</u> <u>documents/generated/7127.pdf</u>	Proposed Endangered
REPTILES NAME	STATUS
Alligator Snapping Turtle Macrochelys temminckii No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/4658</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/F7BZPBVMDZC7VPCACV3GNYVP6M/</u> documents/generated/7127.pdf	Proposed Threatened
NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9743</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/F7BZPBVMDZC7VPCACV3GNYVP6M/</u> documents/generated/7127.pdf	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the <u>"Supplemental Information on Migratory Birds and Eagles"</u>.

- 1. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 2. The Migratory Birds Treaty Act of 1918.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to <u>Bald Eagle Nesting and Sensitivity to Human Activity</u>

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus	Breeds Sep 1 to
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention	Jul 31
because of the Eagle Act or for potential susceptibilities in offshore areas from certain	
types of development or activities.	
https://ecos.fws.gov/ecp/species/1626	

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read <u>"Supplemental Information on Migratory Birds and Eagles"</u>, specifically the FAQ section titled "Proper

Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (=)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

				prob	ability of	f presenc	e 📕 br	eeding se	eason	survey e	effort	— no data
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable	• + •	+ 1 + +	·∔ <mark>I</mark> +	• • • •	11++	· I ++	• • • •	++++	· + I	+ <mark> </mark> + +	+ <mark> </mark> +	1++++

Additional information can be found using the following links:

- Eagle Management <u>https://www.fws.gov/program/eagle-management</u>
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/</u> <u>collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide conservation measures for birds <u>https://www.fws.gov/sites/default/files/</u> <u>documents/nationwide-standard-conservation-measures.pdf</u>
- Supplemental Information for Migratory Birds and Eagles in IPaC <u>https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action</u>

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the <u>"Supplemental Information on Migratory Birds and Eagles"</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel <i>Falco sparverius paulus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/9587</u>	Breeds Apr 1 to Aug 31
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Brown-headed Nuthatch <i>Sitta pusilla</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/9427</u>	Breeds Mar 1 to Jul 15
Cerulean Warbler Setophaga cerulea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/2974</u>	Breeds Apr 26 to Jul 20
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Chuck-will's-widow Antrostomus carolinensis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/9604</u>	Breeds May 10 to Jul 10

NAME	BREEDING SEASON
Coastal (waynes) Black-throated Green Warbler Setophaga virens waynei This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11879	Breeds May 1 to Aug 15
Grasshopper Sparrow Ammodramus savannarum perpallidus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Kentucky Warbler <i>Geothlypis formosa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9443</u>	Breeds Apr 20 to Aug 20
Least Tern Sternula antillarum antillarum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/11919</u>	Breeds Apr 25 to Sep 5
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9679</u>	Breeds elsewhere
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9481</u>	Breeds elsewhere
Pectoral Sandpiper <i>Calidris melanotos</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9561</u>	Breeds elsewhere
Prairie Warbler Setophaga discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9513</u>	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9439</u>	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10

NAME	BREEDING SEASON
Ruddy Turnstone Arenaria interpres morinella This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/9478</u>	Breeds elsewhere
Semipalmated Sandpiper <i>Calidris pusilla</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/9603</u>	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9480</u>	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9431</u>	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read <u>"Supplemental Information on Migratory Birds and Eagles"</u>, specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (=)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

				prob	ability of	f presenc	e br	eeding s	eason	survey	effort	– no data
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
American Kestrel BCC - BCR	++++	++++	++++	++++	+∎++	·	• • • • •	++++	+ ++	+++	+	+
Bald Eagle Non-BCC Vulnerable	+++• <mark> </mark>	+ 1 + +	•+ <mark>1</mark> +	· · · ·]]]++	· I + +	•••	++++	-++ I	+ <mark> </mark> ++	<mark> </mark> +	1
Brown-headed Nuthatch BCC - BCR	++++	++++	•+++	1111	++++	•++•	··· •	++++	-+++	. + + + +	1+++	• ++++
Cerulean Warbler BCC Rangewide (CON)	++++	++++	+ +++	++	++++	•++•	· · I +	++++	-++++	. + + + +	++++	++++
Chimney Swift BCC Rangewide (CON)	++++	+++	++++	• • • •	<u> </u> <u> </u> +	• [++	+ + <mark>1</mark> ·	++++	+ +	+++++	++++	++++
Chuck-will's-widow BCC - BCR	++++	++++	++++	++++	++++	+ <u> </u> +י	··+	++++	-+++	+++++	++++	++++
Coastal (waynes) Black-throated Green Warbler BCC - BCR	+++	++++	++++	11-1	<u>I</u> ∔++	-+++	• • • •	+++]	-+++	•	-+++	• +++++
Grasshopper Sparrow BCC - BCR	++++	++++	++++	++++	++++	• •	· · I ·	++++	-++++	- + + + +	++++	+++
Kentucky Warbler BCC Rangewide (CON)	++++	++++	++++	++ ·]]++	· I + I	•••	++++	-+++	. + + + +	++++	++++
Least Tern BCC Rangewide (CON)	++++	++++	++++	+[]+	+11+	•+++	•-• <mark> </mark> +	++	<mark>+</mark> ∎+∔	++ +	++++	++++
Lesser Yellowlegs BCC Rangewide (CON)	++++	++++	+ 1 ++	+	+	-+++	+11	I +++	++++	111	+++	++++
Marbled Godwit BCC Rangewide (CON)	++++	++++	→ +++	+1++	++++	-+++	++	++++	-++++	. + + + +	++++	. ++++
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Pectoral Sandpiper BCC Rangewide (CON)	++++	++++	+ ++	+	+	-+++	[·	++++	-+++	++11	++++	++++
Prairie Warbler	++++	++++	++++	+++1	∎∔++	• + + +	••+•	++++	++++	++++	++++	++++



Additional information can be found using the following links:

- Eagle Management <u>https://www.fws.gov/program/eagle-management</u>
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/</u> <u>collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide conservation measures for birds <u>https://www.fws.gov/sites/default/files/</u> <u>documents/nationwide-standard-conservation-measures.pdf</u>
- Supplemental Information for Migratory Birds and Eagles in IPaC <u>https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action</u>

IPAC USER CONTACT INFORMATION

Agency:	Army Corps of Engineers
Name:	Taylor Piefke
Address:	4155 Clay St
Address Line 2:	Rm 250
City:	Vicksburg
State:	MS
Zip:	39183
Email	taylor.piefke@usace.army.mil
Phone:	6016315087

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Tate County, MS

A3 Landscape



Project 1

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	97%
Spanish	3%
Total Non-English	3%

5 miles Ring around the Area Population: 3,666 Area in square miles: 83.50

COMMUNITY INFORMATION

€PA



From Ages 1 to 4	5%
From Ages 1 to 18	20 %
From Ages 18 and up	80%
From Ages 65 and up	19%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	0%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES





EJ INDEXES FOR THE SELECTED LOCATION

SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.



SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION

These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 5 miles Ring around the Area

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EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m ³)	8.66	9	22	8.08	63
Ozone (ppb)	61.2	57.9	95	61.6	51
Diesel Particulate Matter (µg/m ³)	0.121	0.136	52	0.261	22
Air Toxics Cancer Risk* (lifetime risk per million)	30	30	0	25	5
Air Toxics Respiratory HI*	0.3	0.38	0	0.31	31
Toxic Releases to Air	950	2,100	78	4,600	58
Traffic Proximity (daily traffic count/distance to road)	2.5	44	20	210	7
Lead Paint (% Pre-1960 Housing)	0.086	0.16	41	0.3	33
Superfund Proximity (site count/km distance)	0.026	0.069	49	0.13	24
RMP Facility Proximity (facility count/km distance)	0.1	0.33	44	0.43	29
Hazardous Waste Proximity (facility count/km distance)	0.11	0.31	44	1.9	21
Underground Storage Tanks (count/km ²)	0.12	2.9	30	3.9	29
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.012	0.023	93	22	69
SOCIOECONOMIC INDICATORS					
Demographic Index	25%	44%	26	35%	43
Supplemental Demographic Index	13%	18%	27	14%	53
People of Color	24%	45%	31	39%	42
Low Income	27%	43%	27	31%	50
Unemployment Rate	6%	7%	59	6%	66
Limited English Speaking Households	0%	1%	0	5%	0
Less Than High School Education	10%	15%	37	12%	58
Under Age 5	5%	6%	53	6%	55
Over Age 64	19%	17%	61	17%	62
Low Life Expectancy	22%	23%	39	20%	74

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	0
Water Dischargers	3
Air Pollution	0
Brownfields	0
Toxic Release Inventory	0

Other community features within defined area:

Schools	0
Hospitals	0
Places of Worship	12

Other environmental data:

Air Non-attainment	No
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 5 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	22%	23%	39	20%	74
Heart Disease	7.2	7.3	42	6.1	71
Asthma	9.9	10.2	45	10	52
Cancer	6.4	6.1	61	6.1	54
Persons with Disabilities	16.9%	17.6%	47	13.4%	75

CLIMATE INDICATORS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	9%	15%	38	12%	64
Wildfire Risk	1%	23%	51	14%	79

CRITICAL SERVICE GAPS					
INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	14%	24%	33	14%	59
Lack of Health Insurance	9%	12%	26	9%	62
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Footnotes

Report for 5 miles Ring around the Area

www.epa.gov/ejscreen



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mississippi Ecological Services Field Office 6578 Dogwood View Parkway, Suite A Jackson, MS 39213-7856 Phone: (601) 965-4900 Fax: (601) 965-4340



In Reply Refer To: Project code: 2024-0027957 Project Name: Arkabutla Dam Interim Risk Reduction Measures

December 18, 2023

Federal Nexus: yes Federal Action Agency (if applicable): Army Corps of Engineers

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Arkabutla Dam Interim Risk Reduction Measures'

Dear Taylor Piefke:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on December 18, 2023, for 'Arkabutla Dam Interim Risk Reduction Measures' (here forward, Project). This project has been assigned Project Code 2024-0027957 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter. *Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.*

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of "May Affect, Not Likely to Adversely Affect" the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your

IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is <u>complete</u> and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a "may affect, not likely to adversely affect" (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Alligator Snapping Turtle *Macrochelys temminckii* Proposed Threatened
- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the species and/ or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Mississippi Ecological Services Field Office and reference Project Code 2024-0027957 associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Arkabutla Dam Interim Risk Reduction Measures

2. Description

The following description was provided for the project 'Arkabutla Dam Interim Risk Reduction Measures':

This project proposes implementing emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. The proposed IRRMs would require constructing six new relief wells with piezometers, installing new piezometers at various locations, and updating currently existing relief wells with new piezometers. All work would be completed within Arkabutla Dam's right-of-way (ROW). No tree clearing would occur.

The approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@34.75698655,-90.12578422105231,14z</u>



DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of "may affect, but not likely to adversely affect" for the Endangered northern long-eared bat (Myotis septentrionalis).

OUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. The action area does not overlap with an area for which U.S. Fish and Wildlife Service currently has data to support the presumption that the northern long-eared bat is present. Are you aware of other data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed NLEB acoustic detections. Data on captures, roost tree use, and acoustic detections should post-date the year when whitenose syndrome was detected in the relevant state. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

No

3. Does any component of the action involve construction or operation of wind turbines?

Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.). No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

No

6. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

Yes

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

No

- 8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)? *No*
- 9. Have you determined that your proposed action will have no effect on the northern longeared bat? Remember to consider the <u>effects of any activities</u> that would not occur but for the proposed action.

If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer "No" below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project's action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a "no effect" determination for the northern long-eared bat.

Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer "No" and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

No

10. Have you contacted the appropriate agency to determine if your action is near any known northern long-eared bat hibernacula?

Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat hibernacula is available <u>here</u>. Location information for northern long-eared bat hibernacula is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

Yes

11. Is any portion of the action area within 0.5-mile radius of any known northern long-eared bat hibernacula? If unsure, contact your local Ecological Services Field Office.

No

12. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

No

Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock crevices in rocky outcrops, rock faces or cliffs?

No

14. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?

(If unsure, answer "Yes.")

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags \geq 3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: <u>https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions</u>

Yes

15. Will the action cause effects to a bridge?

No

16. Will the action result in effects to a culvert or tunnel?

No

17. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

No

- 18. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) known or suspected to contain roosting bats?*No*
- 19. Will the action directly or indirectly cause construction of one or more new roads that are open to the public?

Note: The answer may be yes when a publicly accessible road either (1) is constructed as part of the proposed action or (2) would not occur but for the proposed action (i.e., the road construction is facilitated by the proposed action but is not an explicit component of the project).

No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

21. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

22. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)? *No*

23. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

No

24. Will the action include drilling or blasting?

Yes

25. Will the drilling or blasting affect known or potentially suitable hibernacula, summer habitat, or active year-round habitat (where applicable) for the northern long-eared bat?

Note: In addition to direct impacts to hibernacula, consider impacts to hydrology or air flow that may impact the suitability of hibernacula. Additional information defining suitable summer habitat for the northern long-eared bat can be found at: <u>https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions</u>

No

- 26. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)? *No*
- 27. Will the proposed action involve the use of herbicides or pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?
- 28. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions *No*

29. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

Note: Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions *No*

30. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

No

31. Will the action result in the use of prescribed fire?

No

32. Will the action cause noises that are louder than ambient baseline noises within the action area?

Yes

33. Will the action cause noises during the active season in suitable summer habitat that are louder than anthropogenic noises to which the affected habitat is currently exposed? Answer 'no' if the noises will occur only during the inactive period.

Note: Inactive Season dates for areas within a spring staging/fall swarming area can be found here: <u>https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas.</u>

Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions *No*

PROJECT QUESTIONNAIRE

Will all project activities by completed by April 1, 2024?

Yes

IPAC USER CONTACT INFORMATION

Agency:	Army Corps of Engineers
Name:	Taylor Piefke
Address:	4155 Clay St
Address Line 2:	Rm 250
City:	Vicksburg
State:	MS
Zip:	39183
Email	taylor.piefke@usace.army.mil
Phone:	6016315087

ATTACHMENT: NHPA CORRESPONDENCE

ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS, DESOTO AND TATE COUNTIES, MISSISSIPPI

Table of Contents

A6-1 ľ Re	EM 1: ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS Letter e1
	A6-1.1.1 ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS Initiation _etter1
	A6-1.1.2 ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS Initiation Figures
	A6-1.2 ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS I t t _etter Responses

A6-1 ITEM 1: ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS NHPA SECTION 106 INITIATION LETTER AND RESPONSES

A6-1.1.1 ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS NHPA SECTION 106 Initiation Letter



DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Delvin Johnson Tribal Historic Preservation Officer Alabama Coushatta Tribe of Texas 571 State Park Road Livingston, TX 77351

RE:	Section 106 Review Consultation			
	Undertaking: Arkabutla Dam Emergency Repairs- Relief Wells, DeSoto ar			
Co		Counties, Mississippi Project		
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Mr. Johnson:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

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Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

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The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
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Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

Previous Cultural Resources Investigations

USACE sponsored a large-scale survey and reconnaissance of all four reservoirs in the early 1980s (Broyles et al. 1982). This effort mostly involved revisits of previously recorded archaeological sites, although several new sites were also identified; 74 sites were recorded at Arkabutla Lake, most of which were found to be located on naturally elevated areas within the existing floodplains (*ibid*). More recently, two cultural resources surveys have been conducted on in association with proposed hydroelectric power projects (MDAH Report No. 13-0711; see Figure 4). Archaeologically, no cultural materials or deposits were encountered. NRHP assessments and eligibility recommendations instead focused on the existing reservoir facilities. Accordingly, Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin – collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) is considered eligible for listing to the NRHP under Criteria A and C, with a period of significance from 1936-1954. Under Criterion A, the dams are significant for their association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936 which granted the USACE considerable leeway in the design and selection of flood control efforts. In addition, the dams and reservoirs are also eligible under Criterion C as examples of hydraulic-fill dam technology and for engineering efforts associated with flood control.

Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

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Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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- 1932 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.
- 1961 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.



DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Ms. Samantha Robinson, THPO Alabama-Quassarte Tribal Town P.O. Box 187 Wetumka, OK 74883-0187

RE:	Section 106 Review	Consultation	
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate
	•	Counties, Mississippi Project	
(Location		Latitude	Longitude
	Project Center Point	34.756573°	-90.126030°)

Determination: No Adverse Effects to Historic Properties

Dear Ms. Robinson:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer

declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

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All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

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Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

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Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Jonathan M. Rohrer Tribal Historic Preservation Officer Caddo Nation of Oklahoma 117 Memorial Lane Binger, OK 73009

RE:	Section 106 Review	Consultation	
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate
	Counties, Mississippi Project		
	(Location	Latitude	Longitude
	Project Center Point	34.756573°	-90.126030°)

Determination: No Adverse Effects to Historic Properties

Dear Mr. Rohrer:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

In addition to the APE, USACE MVK gathered information concerning cultural resources and cultural resources investigations within a 1-mile radius around proposed undertaking. Historic properties in the project vicinity were identified based on a review of the National Register of Historic Places (NRHP) database, the Mississippi Department of Archives and History's Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports (Figure 4). According to data from the Mississippi Department of Archives and History's (MDAH) Historical Site Management Tool (HSMT) for the APE, there are four (4) previously recorded archaeological sites in the vicinity, which includes three sites with generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 1; see Figure 4). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment effort. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and has been recommended eligible for listing the NRHP. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam. Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (see Figure 4; Table 2). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	Period(s)	Date Recorded	NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
22Ds548	Pre-Contact Native American	1980	Ineligible
22Ds549	Pre-Contact Native American	1980	Ineligible
22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 2. Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No.	Title	Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi	Jay K. Johnson - private	01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi	Bryan S. Haley - private	01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi	Jay K. Johnson - private	04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013
13-0711	Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014

Cartographic Analysis

The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
11/09/1842	28	I YAH KA TUBBY

Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Karen Brunso Tribal Historic Preservation Officer Chickasaw Nation P.O. Box 1548 Ada, OK 74821

RE:	Section 106 Review	Consultation	
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate
	•	Counties, Mississippi Project	
	(Location	Latitude	Longitude
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Determination: No Adverse Effects to Historic Properties

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Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

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Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

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Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

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The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
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11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
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Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

Previous Cultural Resources Investigations

USACE sponsored a large-scale survey and reconnaissance of all four reservoirs in the early 1980s (Broyles et al. 1982). This effort mostly involved revisits of previously recorded archaeological sites, although several new sites were also identified; 74 sites were recorded at Arkabutla Lake, most of which were found to be located on naturally elevated areas within the existing floodplains (*ibid*). More recently, two cultural resources surveys have been conducted on in association with proposed hydroelectric power projects (MDAH Report No. 13-0711; see Figure 4). Archaeologically, no cultural materials or deposits were encountered. NRHP assessments and eligibility recommendations instead focused on the existing reservoir facilities. Accordingly, Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin – collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) is considered eligible for listing to the NRHP under Criteria A and C, with a period of significance from 1936-1954. Under Criterion A, the dams are significant for their association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936 which granted the USACE considerable leeway in the design and selection of flood control efforts. In addition, the dams and reservoirs are also eligible under Criterion C as examples of hydraulic-fill dam technology and for engineering efforts associated with flood control.

Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416 .R.1388299416

Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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- 1932 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.
- 1961 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.



DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Mrs. Kimberly Walden, M. Ed. Cultural Director/Tribal Historic Preservation Officer Chitimacha Tribe of Louisiana P.O. Box 661 Charenton, LA 70523

RE:	Section 106 Review	Consultation	
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate
	-	Counties, Mississippi Project	
	(Location	Latitude	Longitude
	Project Center Point	34.756573°	-90.126030°)

Determination: No Adverse Effects to Historic Properties

Dear Mrs. Walden:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

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Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

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- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

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Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416 .R.1388299416

Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Dr. Ian Thompson Director/Tribal Historic Preservation Officer Choctaw Nation P.O. Box 1210 Durant, OK 74702-1210

mergency Repairs- Relief Wells, DeSoto and Tate
sippi Project
titude Longitude
756573° -90.126030°)

Determination: No Adverse Effects to Historic Properties

Dear Dr. Thompson:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

In addition to the APE, USACE MVK gathered information concerning cultural resources and cultural resources investigations within a 1-mile radius around proposed undertaking. Historic properties in the project vicinity were identified based on a review of the National Register of Historic Places (NRHP) database, the Mississippi Department of Archives and History's Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports (Figure 4). According to data from the Mississippi Department of Archives and History's (MDAH) Historical Site Management Tool (HSMT) for the APE, there are four (4) previously recorded archaeological sites in the vicinity, which includes three sites with generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 1; see Figure 4). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment effort. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and has been recommended eligible for listing the NRHP. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam. Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (see Figure 4; Table 2). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	Period(s)	Date Recorded	NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
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22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 2. Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No.	Title	Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi	Jay K. Johnson - private	01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi	Bryan S. Haley - private	01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi	Jay K. Johnson - private	04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013
13-0711	Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014
Cartographic Analysis

The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
11/09/1842	28	I YAH KA TUBBY

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Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416

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Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Mr. Dakota John Tribal Historic Preservation Officer Coushatta Tribe of Louisiana P.O. Box 818 Elton, LA 70532

RE:	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate	
	-	Counties, Mississippi Project		
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Mr. John:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

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Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

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Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

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Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

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A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
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11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
11/09/1842	28	I YAH KA TUBBY

Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

Previous Cultural Resources Investigations

USACE sponsored a large-scale survey and reconnaissance of all four reservoirs in the early 1980s (Broyles et al. 1982). This effort mostly involved revisits of previously recorded archaeological sites, although several new sites were also identified; 74 sites were recorded at Arkabutla Lake, most of which were found to be located on naturally elevated areas within the existing floodplains (*ibid*). More recently, two cultural resources surveys have been conducted on in association with proposed hydroelectric power projects (MDAH Report No. 13-0711; see Figure 4). Archaeologically, no cultural materials or deposits were encountered. NRHP assessments and eligibility recommendations instead focused on the existing reservoir facilities. Accordingly, Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin – collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) is considered eligible for listing to the NRHP under Criteria A and C, with a period of significance from 1936-1954. Under Criterion A, the dams are significant for their association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936 which granted the USACE considerable leeway in the design and selection of flood control efforts. In addition, the dams and reservoirs are also eligible under Criterion C as examples of hydraulic-fill dam technology and for engineering efforts associated with flood control.

Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416 .R.1388299416

Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

References Cited

Barnes, Jeanne, and Robert Quiggle

2014 Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi (MDAH Report No. 13-0711).

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- 1961 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.



DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Johnna Flynn Tribal Historic Preservation Officer Jena Band of Choctaw Indians P.O. Box 14 Jena, LA 71342

RE:	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate	
	•	Counties, Mississippi Project		
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Ms. Flynn:

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Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

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Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

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Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Melanie Carson Tribal Historic Preservation Officer Mississippi Band of Choctaw Indians P.O. Box 6257, Choctaw Branch Philadelphia, MS 39350

RE:	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate	
	-	Counties, Mississippi Project		
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Ms. Carson:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

In addition to the APE, USACE MVK gathered information concerning cultural resources and cultural resources investigations within a 1-mile radius around proposed undertaking. Historic properties in the project vicinity were identified based on a review of the National Register of Historic Places (NRHP) database, the Mississippi Department of Archives and History's Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports (Figure 4). According to data from the Mississippi Department of Archives and History's (MDAH) Historical Site Management Tool (HSMT) for the APE, there are four (4) previously recorded archaeological sites in the vicinity, which includes three sites with generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 1; see Figure 4). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment effort. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and has been recommended eligible for listing the NRHP. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam. Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (see Figure 4; Table 2). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	Period(s)	Date Recorded	NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
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22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 2. Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No.	Title	Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi	Jay K. Johnson - private	01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi	Bryan S. Haley - private	01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi	Jay K. Johnson - private	04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013
13-0711	Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014

Cartographic Analysis

The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Hal Bell State Historic Preservation Office Mississippi Department of Archives and History Historic Preservation Division P.O. 571 Jackson, Mississippi 39205-0571

RE:	Section 106 Review Consultation			
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	-	Counties, Mississippi Project		
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Mr. Bell:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

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Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer

declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

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Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

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Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km)

radius of the APE.

Resource Designation	Period(s)	Date Recorded	NRHP Status
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The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
11/09/1842	28	I YAH KA TUBBY

Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

Previous Cultural Resources Investigations

USACE sponsored a large-scale survey and reconnaissance of all four reservoirs in the early 1980s (Broyles et al. 1982). This effort mostly involved revisits of previously recorded archaeological sites, although several new sites were also identified; 74 sites were recorded at Arkabutla Lake, most of which were found to be located on naturally elevated areas within the existing floodplains (*ibid*). More recently, two cultural resources surveys have been conducted on in association with proposed hydroelectric power projects (MDAH Report No. 13-0711; see Figure 4). Archaeologically, no cultural materials or deposits were encountered. NRHP assessments and eligibility recommendations instead focused on the existing reservoir facilities. Accordingly, Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin – collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) is considered eligible for listing to the NRHP under Criteria A and C, with a period of significance from 1936-1954. Under Criterion A, the dams are significant for their association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936 which granted the USACE considerable leeway in the design and selection of flood control efforts. In addition, the dams and reservoirs are also eligible under Criterion C as examples of hydraulic-fill dam technology and for engineering efforts associated with flood control.

Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416 .R.1388299416

Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

References Cited

Barnes, Jeanne, and Robert Quiggle

2014 Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi (MDAH Report No. 13-0711).

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- 1961 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.



DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Turner Hunt, Tribal Historic Preservation Officer Attn: Historic and Cultural Preservation Office Muscogee (Creek) Nation P.O. Box 580 Okmulgee, OK 74447

RE:	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate	
	•	Counties, Mississippi Project		
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Mr. Hunt:

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The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

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- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

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Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

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Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Billie Burtrum Preservation Officer/QHPP Director; Tribal Historic Preservation Officer Quapaw Nation P.O. Box 765 Quapaw, OK 74363

RE:	Section 106 Review	Consultation	
	Undertaking:	Arkabutla Dam Emergency Repairs	- Relief Wells, DeSoto and Tate
	-	Counties, Mississippi Project	
	(Location	Latitude	Longitude
	Project Center Point	34.756573°	-90.126030°)

Determination: No Adverse Effects to Historic Properties

Dear Ms. Burtrum:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

In addition to the APE, USACE MVK gathered information concerning cultural resources and cultural resources investigations within a 1-mile radius around proposed undertaking. Historic properties in the project vicinity were identified based on a review of the National Register of Historic Places (NRHP) database, the Mississippi Department of Archives and History's Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports (Figure 4). According to data from the Mississippi Department of Archives and History's (MDAH) Historical Site Management Tool (HSMT) for the APE, there are four (4) previously recorded archaeological sites in the vicinity, which includes three sites with generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 1; see Figure 4). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment effort. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and has been recommended eligible for listing the NRHP. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam. Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (see Figure 4; Table 2). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	Period(s)	Date Recorded	NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
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22Ds549	Pre-Contact Native American	1980	Ineligible
22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 2. Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No.	Title	Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi		01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi		01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi		04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013
13-0711	Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014

Cartographic Analysis

The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
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Chief, Environmental Compliance Section Regional Planning and Environmental Division South

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Mr. Benjamin Yahola Tribal Historic Preservation Officer Seminole Nation of Oklahoma 36645 US-270 Wewoka, OK 74884

RE:	Section 106 Review	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate		
	•				
	(Location	Latitude	Longitude		
	Project Center Point	34.756573°	-90.126030°)		

Determination: No Adverse Effects to Historic Properties

Dear Mr. Yahola:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

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backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

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Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

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The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
11/09/1842	28	I YAH KA TUBBY

Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

Previous Cultural Resources Investigations

USACE sponsored a large-scale survey and reconnaissance of all four reservoirs in the early 1980s (Broyles et al. 1982). This effort mostly involved revisits of previously recorded archaeological sites, although several new sites were also identified; 74 sites were recorded at Arkabutla Lake, most of which were found to be located on naturally elevated areas within the existing floodplains (*ibid*). More recently, two cultural resources surveys have been conducted on in association with proposed hydroelectric power projects (MDAH Report No. 13-0711; see Figure 4). Archaeologically, no cultural materials or deposits were encountered. NRHP assessments and eligibility recommendations instead focused on the existing reservoir facilities. Accordingly, Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin – collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) is considered eligible for listing to the NRHP under Criteria A and C, with a period of significance from 1936-1954. Under Criterion A, the dams are significant for their association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936 which granted the USACE considerable leeway in the design and selection of flood control efforts. In addition, the dams and reservoirs are also eligible under Criterion C as examples of hydraulic-fill dam technology and for engineering efforts associated with flood control.

Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416 .R.1388299416

Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

References Cited

Barnes, Jeanne, and Robert Quiggle

2014 Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi (MDAH Report No. 13-0711).

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- Cloy, C., A. Johnson, and J. Barnes
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- 1932 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.
- 1961 Horn Lake, MS, [Contours]. 15-Minute Series (Topographic). Reston, VA: USGS.



DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Ms. Tina Osceola Tribal Historic Preservation Officer Seminole Tribe of Florida 6300 Stirling Road Hollywood, FL 33024

RE:	Section 106 Review	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate		
	-				
	(Location	Latitude	Longitude		
	Project Center Point	34.756573°	-90.126030°)		

Determination: No Adverse Effects to Historic Properties

Dear Ms. Osceola:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

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The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

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- Sardis on the Little Tallatchie River
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Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

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Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

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Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Earl Barbry, Jr. Tribal Historic Preservation Officer Tunica-Biloxi Indian Tribe of Louisiana P.O. Box 1589 Marksville, LA 71351

RE:	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs- Relief Wells, DeSoto and Ta		
	Counties, Mississippi Project			
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Mr. Barbry:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

In addition to the APE, USACE MVK gathered information concerning cultural resources and cultural resources investigations within a 1-mile radius around proposed undertaking. Historic properties in the project vicinity were identified based on a review of the National Register of Historic Places (NRHP) database, the Mississippi Department of Archives and History's Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports (Figure 4). According to data from the Mississippi Department of Archives and History's (MDAH) Historical Site Management Tool (HSMT) for the APE, there are four (4) previously recorded archaeological sites in the vicinity, which includes three sites with generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 1; see Figure 4). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment effort. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and has been recommended eligible for listing the NRHP. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam. Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (see Figure 4; Table 2). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	ce Designation Period(s)		NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
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22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 2. Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No.	Title	Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi	Jay K. Johnson - private	01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi	Bryan S. Haley - private	01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi	Jay K. Johnson - private	04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013
13-0711	Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014

Cartographic Analysis

The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
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DEPARTMENT OF THE ARMY VICKSBURG DISTRICT, CORPS OF ENGINEERS 4155 CLAY STREET VICKSBURG, MISSISSIPPI 39183-3435

April 19, 2024

Regional Planning and Environment Division, South Environmental Planning Branch Attn: CEMVK-PDS-N

Mr. Jason Dalton Tribal Historic Preservation Officer United Keetoowah Band of Cherokee Indians P.O. Box 746 Tahleguah, OK 74465-0746

RE:	Section 106 Review Consultation			
	Undertaking:	Arkabutla Dam Emergency Repairs-	Relief Wells, DeSoto and Tate	
	Counties, Mississippi Project			
	(Location	Latitude	Longitude	
	Project Center Point	34.756573°	-90.126030°)	

Determination: No Adverse Effects to Historic Properties

Dear Mr. Dalton:

The U.S. Army Corps of Engineers, Vicksburg District (USACE MVK), is proposing to implement emergency intermediate risk reduction measures (IRRMs) to reduce the likelihood of Arkabutla Dam being breached while long-term dam repairs are completed. All work would be completed within the existing Arkabutla Dam's right-of-way (ROW). The project area is located as follows on the *Banks, MS* and *Frees Corner, MS* 7.5-minute USGS quadrangle maps: Sections 2 and 11 in Township 4S, Range 9W (Figures 1 & 2).

Project Authority

Under Public Law 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities, including disaster preparedness, advance measures, emergency operations (flood and post flood responses), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. This Project is authorized by the Flood Control Act of 1928 (Public Law 70-391), as amended, including but not limited to, the Flood Control Act of 1936 (Public Law 74-738), the Flood Control Act of 1938 (Public Law 75-761), the Flood Control Act of 1941 (Public Law 77-228), the Flood Control Act of 1946 (Public Law 79-526), the Flood Control Act of 1950 (Public Law 81-516), the Flood Control Act of 1954 (Public Law 83-780), the Flood Control Act of 1962 (Public Law 87-874), the Flood Control Act of 1965 (Public Law 83-780), the River and Harbor and Flood Control Act of 1968 (Public Law 90-483), and the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662).

Description of Undertaking

Arkabutla Dam has been at risk of being breached since the discovery that higher than normal flows, fine and coarse sands, woody debris, and organic matter were all being passed through the pressure relief systems underneath the stilling basin, which signified the possible presence of a

backwards eroding pipe developing or progressing. On May 7, 2023, the MVK Dam Safety Officer declared the situation at Arkabutla Dam to be a Potential Breach Emergency and began lowering the Arkabutla Lake's pool level to 204 ft. elevation to relieve pressure on the dam. After the pool was lowered a deviation from Arkabutla Lake's current water control plan was implemented, to maintain the lake pool at 204 ft. elevation until interim and long-term repairs can be made.

This project proposes constructing six new relief wells with piezometers, installing eleven new piezometers at various existing well locations, and replacing current piezometers with new automated models (Figure 3). The additional relief wells and piezometers would further reduce pressure on Arkabutla Dam and allow for better monitoring of the situation until permanent repairs can be developed and implemented. Without the relief wells there would be an increased risk of the dam breaching and flooding the surrounding areas. This alternative also proposes to build two double swing barrier gates on either side of the conduit to prevent the public from accessing the area. As indicated in Figure 3, all actions are incurring in areas previously disturbed by similar actions and activities.

Area of Potential Effects (APE)

Arkabutla Dam is in the Northwest portion of Mississippi in DeSoto county about 35 miles (56.3 km) south of Memphis, Tennessee. The dam was constructed to improve flood risk management in Yazoo River basin. After the Great Mississippi Flood of 1927, engineers and technical experts determined that the headwaters of the Yazoo River played a substantial role in the flooding of the Mississippi Delta. In 1936, the Yazoo Headwater Project created the Arkabutla, Sardis, Enid, and Grenada lakes in Mississippi to reduce flood risk. The Arkabutla Dam measures 11,500 feet/2.18 miles (3,505 meters/3.5 km) long with an average height of 67 feet (20.4 meters). The APE is defined as all areas where installation of and staging for the relief wells, new piezometers, and swing barrier gates will occur. Access to the work area will be via the existing paved access roadways (see Figures 1-3). The APE totals approximately 25.8 acres (10.4 hectares) and includes all direct, indirect, and cumulative effects from the Undertaking.

Identification and Evaluation of Historic Properties

In addition to the APE, USACE MVK gathered information concerning cultural resources and cultural resources investigations within a 1-mile radius around proposed undertaking. Historic properties in the project vicinity were identified based on a review of the National Register of Historic Places (NRHP) database, the Mississippi Department of Archives and History's Historical Site Management Tool (HSMT), historic aerial photography, historic map research, and a review of cultural resources survey reports (Figure 4). According to data from the Mississippi Department of Archives and History's (MDAH) Historical Site Management Tool (HSMT) for the APE, there are four (4) previously recorded archaeological sites in the vicinity, which includes three sites with generalized Pre-Contact Native American occupations identified in 1980 in DeSoto County, and one with a Middle-to-Late Woodland period occupation identified in 1999 in Tate County (Table 1; see Figure 4). The three DeSoto County sites are currently listed as ineligible; however, that is based on very minimal identification and eligibility assessment effort. The Tate County site has been subjected to more rigorous identification and eligibility assessment efforts and has been recommended eligible for listing the NRHP. Additionally, one historic property has been inventoried within the same search radius, consisting of the existing Arkabutla Dam. Furthermore, there have been eight (8) cultural resources surveys/studies conducted in or adjacent to the APE, two of which overlap with the proposed APE, covering approximately 91% (23.6 acres [9.6 hectares]) of the proposed project footprint (October 2013 Report; MDAH Report No. 13-0717) (see Figure 4; Table 2). Assessments and evaluations of this area in 2013 and 2014 recommend the Arkabutla, Enid, Grenada, and Sardis lakes and dams are recognized as important elements of the Yazoo Headwater Project and considered eligible for listing to the NRHP under Criteria A and C (Cloy et al. 2013; Barnes and Quiggle 2014).

Table 1. Previously recorded cultural resources located within an approximately 1-mile (1.6 km) radius of the APE.

Resource Designation	ce Designation Period(s)		NRHP Status
22Ds547	Pre-Contact Native American	1980	Ineligible
22Ds548	Pre-Contact Native American	1980	Ineligible
22Ds549	Pre-Contact Native American	1980	Ineligible
22Ta667	Middle-to-Late Woodland	1999	Eligible
137-ARK-1002	Circa 1940-1943	2013	Eligible

Table 2. Previously recorded cultural resources surveys conducted within an approximately 1-mile (1.6 km) radius of the APE.

Report No.	Title	Author/Principal Investigator	Date
92-307	A Cultural Resource Inventory Proposed Land Buys Arkabutla and Grenada Lakes, Mississippi	H. Blaine Ensor, Jefferson M. Thomson, and Richard Walling – Panamerican Consultants, Inc.	01/1993
95-150	Cultural Resources Survey of 195 Acre Tract of Land, Arkabutla Lake, DeSoto County, Mississippi	James Lauro – Archaeology Mississippi, Inc.	04/1995
99-202	Cultural Resources Survey of Proposed Timber Cut Areas, Sardis and Arkabutla Reservoirs, Lafayette, Marshall, and Tate Counties, Mississippi	Jay K. Johnson - private	01/1999
02-281	Cultural Resources Survey of Proposed Timber Cut Areas, Arkabutla Reservoir, DeSoto County, Mississippi	Bryan S. Haley - private	01/2002
06-112	Cultural Resources Survey of a Proposed Land Transfer Area, DeSoto County, Mississippi	Jay K. Johnson - private	04/2006
10-0757	Cultural Resources Survey of a Parcel of Land Along the North Bank of the Emergency Spillway, DeSoto County, Mississippi	Jay K. Johnson - private	10/2010
	Phase I Cultural Resources Survey Report for the Sardis Lake Hydroelectric Project (FERC No. 13701), Grenada Lake Hydroelectric Project (FERC No. 13702), Enid Lake Hydroelectric Project (FERC No. 13703), and the Arkabutla Lake Hydroelectric Project (FERC No. 13704), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Cloy, C., A. Johnson, and J. Barnes – HDR, Inc.	10/2013
13-0711	Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi	Jeanne Barnes and Robert Quiggle – HDR, Inc.	03/2014

Cartographic Analysis

The landscape that constitutes the study area has been dramatically altered over the last few centuries, most dramatically over the last 80 years by man-made processes. With the formation of the state of Mississippi, new Indian cessions were deemed necessary as no land had been open to Euro-American settlers since 1805. The Chickasaws ceded their lands in 1832 with the Treaty of Pontotoc (Bettersworth 1959). Arkabutla Lake, along with Enid Lake and Sardis Lake are located with the lands ceded under this treaty (Figure 5). Analysis of the resultant General Land Office (GLO) plat sheet prepared by the Pontotoc, Mississippi office based on an 1833 survey of Township 4S, Range 9W depicts the Coldwater River as the only feature, which meandered through the northern edges of the APE, marking the boundary between DeSoto (north of the Coldwater) and Tate (south of the Coldwater) counties (Figure 6).

A number of American Indian patent holders are identified in the associated documentation for this particular township and range. These are summarized in Table 3 and shown on the GLO map in red (see Figure 6). The patents for Sections 2 and 11 to O YOCK AH TUBBY completely encompass the proposed project area. No material evidence of early nineteenth-century Indian settlement in the project area was encountered during previous cultural resources fieldwork efforts in 2013/2014.

Date	Section(s)	Name
11/16/1840	1, 12	I AH NO CHA TUBBY
11/16/1840	2, 11	O YOCK AH TUBBY
11/16/1840	3, 4	NE CHUCK MUBBY
11/09/1842	5	ISH TE TO TA
11/19/1842	South 1/2 9	AH POCK SHO NUBBY
11/16/1840	15, 16	HO I CHE TUBBY
06/06/1845	20	ΑΗ CO ΤΑ
06/26/1844	21, 22	STE MO HOTH KA
06/06/1845	23	IM MO HO NAH
11/09/1842	24	I O NAH
11/22/1844	26	NA TOOK CHUCK MUBBY
11/16/1840	27, 34	ISH TE HO THLA
11/09/1842	28	I YAH KA TUBBY

Table 3. American Indian patent holders on the original GLO survey plat.

The immediate area was only marginally active during the Civil War, associated with an attempted but unsuccessful joint army-navy transport down a series of waterways in the Spring of 1863, beginning at Moon Lake through the Coldwater and Yalobusha rivers before joining the Yazoo River, which fed the Mississippi River, thereby allowing Union forces access to high ground north of the Confederate stronghold of Vicksburg (Davis et al. 2003; Shea and Winschel 2005) (Figure 7). No substantive archival maps of the project area are available until the publication of the 1932 *Horn Lake* 15-minute USGS quadrangle map (Figure 8). The overall course of the Coldwater remains generally the same as depicted on the earlier GLO map. The area is mostly wooded acreage, including both the terrace and the lower elevations of the floodplain, the exception being the southernmost edges of the project area, which are cleared around an unimproved roadway that terminates at a single residential structure (see Figure 8).

Following the first World War, the flood of 1927 was one of the major transformative events in Mississippi history and covering nearly half of the Delta under 30-ft. of water for months (Barry 1998; Bettersworth 1959). This resulted in the creation of several large flood-control steps by the Corps of Engineers in Vicksburg (Barry 1998). The Headwater Project was initially authorized

under The Flood Control Act of 1936. The plan called for the construction of four reservoirs in the uplands to control flooding in the Yazoo Basin:

- Arkabutla on the Coldwater River
- Sardis on the Little Tallatchie River
- Enid on the Yacona River
- Grenada on the Yalobusha River

Construction of the Arkabutla Reservoir began in August 1940, and was completed in June 1943 (Vicksburg District 1952:8-9). The relocation of U.S. Highway 51 across the reservoir pool was not completed until 1945. The Arkabutla Dam and abutments consist of earthen fill, with the dam measuring 10,000 ft. (3.05 km) long and a top elevation of 264.3 feet (80.6 meters) (Figure 9). The Arkabutla Reservoir conservation pool is 209.3 feet (63.8 meters), the spillway crest is 238.3 feet (72.6 meters), and the reservoir extends up the Coldwater River for approximately 16 miles (25.7 km).

All subsequent mid-twentieth-century aerials and maps post-date construction of the reservoir and depict essentially the same environment, that of the existing earthen dam, gaging station, intake tower, outlet channel, and still basin. Aerials taken in 1954 for the 1959 Tate County soil survey as well as the 1961 Horn Lake 15-minute USGS guadrangle map show an area completely devoid of woods and open, with roadways leading to the areas north and south of the outlet channel, as well as across the crown of the dam. The alignment of the unimproved roadway seen on the 1932 guadrangle largely corresponds to the modern road south of the outlet channel. There is no evidence of the previous structure. By the 1980s, the alignment of roadways accessing and servicing areas south of the outlet channel had shifted in response to the construction of support structures (Figure 10). According to these mid-century published soil charts/maps, the presence of borrow pits or Borrow Area (BA) to the west of the dam north and south of the Coldwater River, as well as the extant earthen dam, itself "made land" (Ma) levee (LV), are additional indications of an altered, constructed landscape (Figures 11 and 12). Modern USDA soil data classify these same areas with several reissued symbology (Borrow Pit [BP], Borrow Area [Ba], and Made Land [Ma]), with the additional of DAM (earthen dam). Only the far southwestern extents of the general project area retain some natural soil development in a stand of trees west of the toe of the earthen dam (a preexisting and severely eroded silt loam [MeF3 - Memphis silt loam]) (USDA 2024).

Previous Cultural Resources Investigations

USACE sponsored a large-scale survey and reconnaissance of all four reservoirs in the early 1980s (Broyles et al. 1982). This effort mostly involved revisits of previously recorded archaeological sites, although several new sites were also identified; 74 sites were recorded at Arkabutla Lake, most of which were found to be located on naturally elevated areas within the existing floodplains (*ibid*). More recently, two cultural resources surveys have been conducted on in association with proposed hydroelectric power projects (MDAH Report No. 13-0711; see Figure 4). Archaeologically, no cultural materials or deposits were encountered. NRHP assessments and eligibility recommendations instead focused on the existing reservoir facilities. Accordingly, Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin – collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) is considered eligible for listing to the NRHP under Criteria A and C, with a period of significance from 1936-1954. Under Criterion A, the dams are significant for their association with the Yazoo Headwater Project, the first comprehensive flood control project in the Yazoo River Basin and the expanded authority of the USACE resulting from the Flood Control Act of 1936 which granted the USACE considerable leeway in the design and selection of flood control efforts. In addition, the dams and reservoirs are also eligible under Criterion C as examples of hydraulic-fill dam technology and for engineering efforts associated with flood control.
Given existing survey coverage, previous construction, development, and maintenance activities that have resulted in an altered and "man-made" landscape, and the low probability of the presence of unidentified resources, USACE has determined that the existing surveys constitute a reasonable and good faith effort at identification and evaluation of historic properties and that it is unlikely that any unidentified historic properties are present in the currently proposed APE. Furthermore, these planned actions and activities will not alter nor affect the historic characteristics of Arkabutla Dam and Reservoir (specifically the earthen dam, Gaging Station, Intake Tower, Outlet Channel, and Stilling Basin - collectively inventoried as MDAH Historic Structures Inventory No. 137-ARK-1002) that serve as the basis for their NRHP eligibility recommendation for this overall resource; therefore, no further cultural resources investigation is recommended.

Assessment of Effects to Historic Properties

Based on the information presented in this letter, USACE MVK is making a finding of No Adverse Effect to Historic Properties for this undertaking and submitting it to you for review and comment. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE MVK requests your comments within 30 days, per 36 CFR 800.5(c)

If you have any questions or require additional information concerning these undertakings, please contact Mr. John Underwood of this office at (601) 631-5017 or via e-mail John.R.Underwood@usace.army.mil or Mr. Mike Renacker, Vicksburg District Tribal Liaison at (601) 631-5842 or via e-mail at Mike.Renacker@usace.army.mil.

Sincerely,

MOORE.DANIEL Digitally signed by MOORE.DANIEL.R.1388299416 .R.1388299416

Date: 2024.04.22 09:55:35 -05'00'

Dan Moore Chief, Environmental Compliance Section Regional Planning and Environmental Division South

List of Recipients:

Alabama-Coushatta Tribe of Texas Alabama-Quassarte Tribal Town Caddo Nation of Oklahoma Chickasaw Nation Chitimacha Tribe of Louisiana Choctaw Nation of Oklahoma Coushatta Tribe of Louisiana Jena Band of Choctaw Indians, Louisiana Mississippi Band of Choctaw Indians Muscogee (Creek) Nation Quapaw Nation Seminole Nation of Oklahoma Seminole Tribe of Florida Tunica-Biloxi Tribe of Louisiana United Keetoowah Band of Cherokee Indians Mississippi State Historic Preservation Office (MS SHPO)

References Cited

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2014 Addendum to Cultural Resources Survey for the Proposed Yazoo River Basin Hydroelectric Power Projects, 13701-Sardis Lake, 13702-Grenada Lake, 13703-Enid Lake, and 13704-Arkabutla Lake, MDAH Project Log #04-010-14, (#11-098-13 & 04-171-13), DeSoto, Grenada, Panola, Tate, and Yalobusha Counties, Mississippi (MDAH Report No. 13-0711).

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A6-1 ITEM 1: ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS NHPA SECTION 106 INITIATION LETTER AND RESPONSES

A6-1.1.2 ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS NHPA SECTION 106 INITIATION LETTER AND RESPONSES NHPA SECTION 106 Initiation Letter Figures



Figure 1. Arkabutla Dam Emergency Repairs- Relief Wells APE. Project Area Overview (Aerial).



Figure 2. Arkabutla Dam Emergency Repairs- Relief Wells APE. Project Area Overview (Topo).



Figure 3. Arkabutla Dam Emergency Repairs- Relief Wells proposed plan.



Figure 4. USGS topographic map displaying existing cultural resources and cultural resources surveys and NRHP data within a 1-mile (1.6 km) radius of the APE.



Figure 5. Native American land sessions in Mississippi.

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Figure 6. The 1833 GLO Plat Map with the APE indicated (red).



Figure 7. Civil War era map of north-central Mississippi with USACE lakes added (after Official Records of the War of Rebellion Topographic Sheet XIX).



Figure 8. Excerpt from the 1932 USGS, *Horn Lake, MS*, 1:62,500 quadrangle map depicting the APE (red).



Figure 9. War Department issued photo of the Arkabutla Dam under construction (NRCS soil map of the APE and vicinity (<u>https://www.mvk.usace.army.mil/Missions/Recreation/Arkabutla-Lake/</u>).



Figure 10. Excerpt from the 1961 USGS, *Horn Lake, MS*, 1:62,500 quadrangle map depicting the APE (red).



Figure 11. Aerial sheet from the 1959 DeSoto County Soil Survey depicting the APE (red).



Figure 12. Aerial sheet from the 1967 Tate County Soil Survey depicting the APE (red).

A6-1 ITEM 1: ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS NHPA SECTION 106 INITIATION LETTER AND RESPONSES

A6-1.2 ARKABUTLA DAM EMERGENCY REPAIRS - RELIEF WELLS NHPA SECTION 106 INITIATION LETTER AND RESPONSES 106 Initiation Letter Responses

From:	Julia Pebeahsy
To:	Underwood, John R CIV USARMY CEMVK (USA)
Subject:	[Non-DoD Source] The Correct Response to Arkabutla Dam Emergency Repairs DeSoto Tate Counties, Mississippi Project
Date:	Tuesday, April 30, 2024 8:53:40 AM

Tuesday, April 30, 2024 Attn: John R. Underwood, MA, RPA, Archaeologist Cultural & Social Resources Section U.S. Army Corps of Engineers Vicksburg District Regional Planning and Environment Division, South 4155 Clay Street Vicksburg, Mississippi 39183-3435 Re: Arkabutla Dam Emergency Repairs DeSoto Tate Counties, Mississippi Dear Mr. John R. Underwood The Quapaw Nation Historic Preservation Program (QNHPP) has received and reviewed the information you have provided. Based upon the information you provided we believe that the Arkabutla Dam Emergency Repairs DeSoto Tate Counties, Mississippi project is not likely to adversely affect properties of cultural or sacred significance to the Quapaw

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d) (6) (A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Quapaw Nation has vital interests in protecting its historic and ancestral cultural resources. We do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, or the Native American Graves Protection and Repatriation Act. If, however, artifacts or human remains are discovered during project construction, we ask that work cease immediately and that you contact the Quapaw Nation Historic Preservation Office.

Should you have any questions or need any additional information, please feel free to contact Julia Pebeahsy at Julia.pebeahsy@quapawnation.com, please copy section106@quapawnation.com to ensure additional information requests are reviewed in a timely manner. Thank you for consulting with the Quapaw Nation on this matter. Sincerely, Julia Pebeahsy On behalf of -Billie Burtrum Preservation Officer/ QNHPP Director Quapaw Nation P.O. Box 765 Quapaw, OK 74363 (w) 918-238-3100 (f) 918-674-2456

Thank you for your time.

Nation.

Julia Pebeahsy The Quapaw Nation Historic Preservation Program (QNHPP) P.O. Box 765 Quapaw, Oklahoma 74363 Office 918-238-3100 Ext 6108 Cell 918-325-3712 https://www.quapawtribe.com/192/Quapaw-Nation-Historic-Preservation-Prog



P.O. Box 571 Jackson, MS 39205-0571 601-576-6850 mdah.ms.gov

May 16, 2024

Mr. John Underwood U.S. Army Corps of Engineers, Vicksburg District 4155 East Clay Street Vicksburg, Mississippi 39183-3435

RE: Proposed Construction of Relief Wells, Arkabutla Dam, (USACE) MDAH Project Log #04-145-24, Desoto and Tate Counties

Dear Mr. Underwood:

We have reviewed the request for a cultural resources assessment for the above referenced project, received on April 23, 2024, in accordance with our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After reviewing the information provided, if any cultural materials such as pottery, nails, glass, stone tools such as arrowheads, or animal bones are encountered, all work should cease, and the Chief Archaeologist shall be notified within 24 hours so that the appropriate descendant communities can be consulted for a path forward in accordance with state and federal law.

Also, SHPO concurs that the Arkabutla Dam is eligible for listing in the National Register of Historic Places. The proposed construction of relief wells will have No Adverse Effect on the dam, so long as the work remains within the rights-of-way. With these conditions, we have no objection with the proposed undertaking.

Should there be additional work in connection with the project, or any changes in the scope of work, please let us know in order that we may provide you with appropriate comments in compliance with the above referenced regulations. If you have any questions, please do not hesitate to contact us at (601) 576-6940.

Sincerely,

Hal Bell

Hal Bell Review and Compliance Officer

FOR: Katie Blount State Historic Preservation Officer