



**US Army Corps  
of Engineers**®  
Galveston District

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**DRAFT  
ENVIRONMENTAL ASSESSMENT**

**IMPLEMENTATION OF AN OPERATIONAL INTERIM RISK  
REDUCTION MEASURE AT BEAVER LAKE DAM  
BENTON AND CARROLL COUNTIES, ARKANSAS**

**U.S. Army Corps of Engineers  
Southwestern Division  
Little Rock District**

**July 2023**

# TABLE OF CONTENTS

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<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	PROJECT HISTORY .....	1
1.2	PROJECT AREA.....	3
1.3	PURPOSE AND NEED .....	4
1.4	ENVIRONMENTAL ASSESSMENT (EA) SCOPE .....	4
<b>2.0</b>	<b>ALTERNATIVES .....</b>	<b>5</b>
2.1	NO ACTION.....	5
2.2	HYBRID PRE/POST 1998 PLAN.....	5
2.3	HYBRID CROP PLANTING PLAN (RECOMMENDED PLAN) .....	5
2.4	SPRINGTIME LAKE DRAWDOWNS .....	6
<b>3.0</b>	<b>AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....</b>	<b>7</b>
3.1	OVERVIEW .....	7
3.2	RESOURCES CONSIDERED FOR ANALYSIS .....	9
3.3	THREATENED AND ENDANGERED SPECIES .....	12
3.3.1	Affected Environment .....	12
3.3.2	Environmental Consequences .....	17
3.4	CULTURAL RESOURCES .....	18
3.4.1	Affected Environment .....	19
3.4.2	Environmental Consequences .....	19
3.5	ENVIRONMENTAL JUSTICE.....	20
3.5.1	Affected Environment .....	20
3.5.2	Environmental Consequences .....	24
3.6	PRIME AND UNIQUE FARMLAND .....	24
3.6.1	Affected Environment .....	24
3.6.2	Environmental Consequences .....	24
<b>4.0</b>	<b>ENVIRONMENTAL COMPLIANCE .....</b>	<b>26</b>
4.1	NATIONAL ENVIRONMENTAL POLICY ACT .....	26
4.2	ENDANGERED SPECIES ACT .....	26
4.3	MIGRATORY BIRD HABITAT PROTECTION.....	26
4.4	MIGRATORY BIRD TREAT ACT .....	26
4.5	CLEAN AIR ACT .....	26
4.6	FARMLAND PROTECTION POLICY ACT .....	26
4.7	NATIONAL HISTORIC PRESERVATION ACT.....	27
4.8	EXECUTIVE ORDER 11990 – PROTECTION OF WETLANDS .....	27
4.9	EXECUTIVE ORDER 11988 – FLOODPLAIN MANAGEMENT .....	27
4.10	EXECUTIVE ORDER 12898 – ENVIRONMENTAL JUSTICE.....	27

**5.0 REFERENCES .....28**

Figure 1. White River Basin ..... 4

Figure 2. Chart of relative storage management capacity for various springtime drawdown scenarios ..... 6

Figure 3. Socioeconomic Indicators for the Census Blocks of the Project Area Compared to All People’s Block Groups in the State and United States ..... 22

Figure 4. Pollution and Sources Indicators for the Census Blocks of the Project Area Compared to All People’s Block Groups in the State and United States ..... 23

Table 1. Resources Considered ..... 9

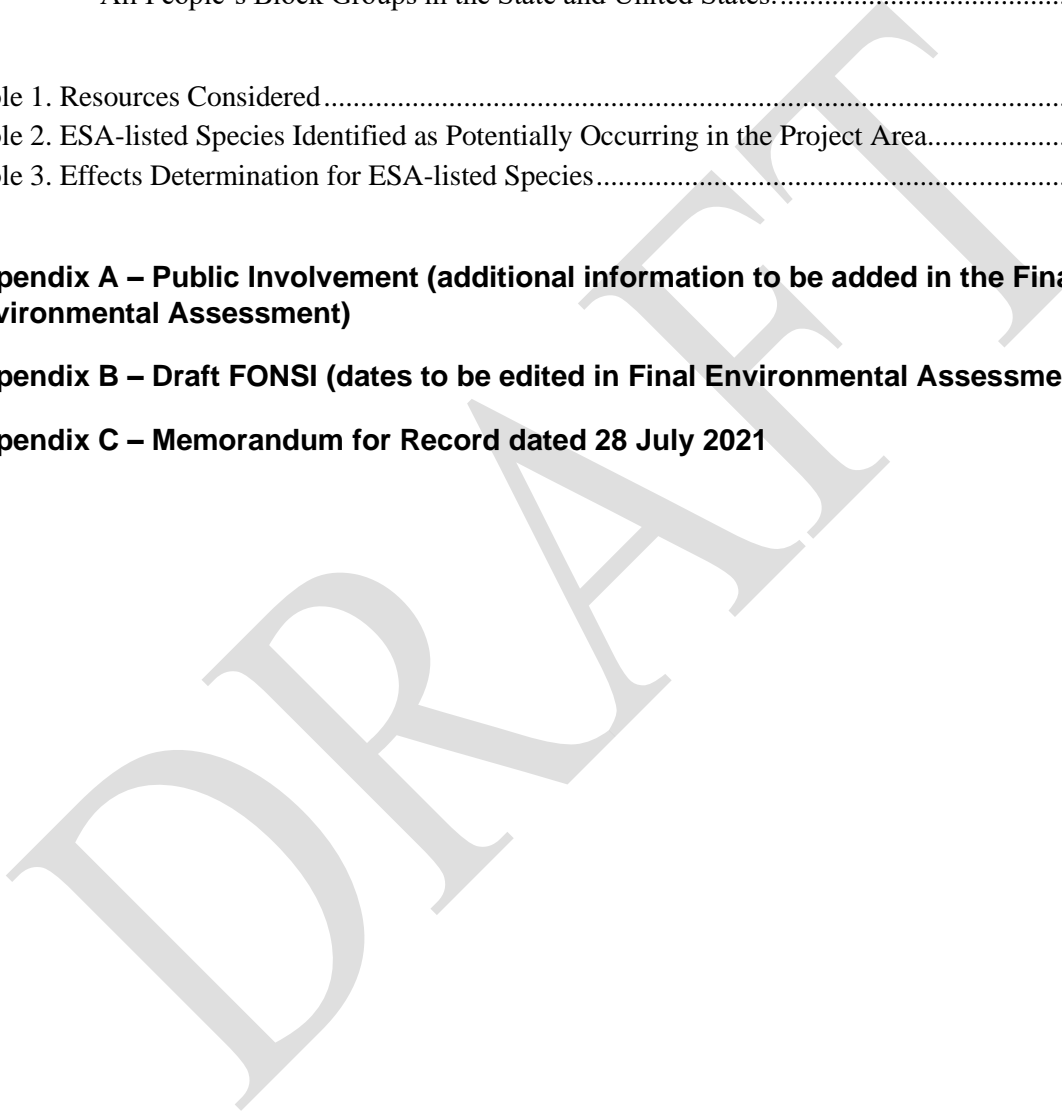
Table 2. ESA-listed Species Identified as Potentially Occurring in the Project Area ..... 13

Table 3. Effects Determination for ESA-listed Species ..... 17

**Appendix A – Public Involvement (additional information to be added in the Final Environmental Assessment)**

**Appendix B – Draft FONSI (dates to be edited in Final Environmental Assessment)**

**Appendix C – Memorandum for Record dated 28 July 2021**



# **1.0 INTRODUCTION**

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The US Army Corps of Engineers, Little Rock District (USACE) prepared this Environmental Assessment (EA) to evaluate and disclose the potential impacts to the natural and human environment from modifying the authorized and implemented Operational Interim Risk Reduction Measure Plan (IRRMP) at Beaver Dam, White River, Arkansas. In 2021 the IRRMP was revised to include an additional operational Interim Risk Reduction Measure (IRRM) to allow for water control operations that evacuate the flood storage more efficiently than the previous water control plan. The action was authorized as an “urgent” need to reduce the threat to life safety, property, and valuable natural resources under an emergency action under CEQ NEPA Regulations (40 CFR 1506.11) and National Environmental Policy Act Guidance issued by CEQ on 14 September 2020 (85 FR 60137) as identified in a Memorandum for Record dated 28 July 2021 (Appendix D).

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S. Code [USC] 4321 et seq.) and its implementing regulations published by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR], 1500 to 1508), and the U.S. Department of Army’s NEPA regulation (32 CFR 651) and associated implementation guidance (AR 200-2).

## **1.1 PROJECT HISTORY**

Beaver Dam is located in the Northwest corner of Arkansas on the White River at mile 609, in Benton and Carroll counties. The watershed basin for Beaver Lake covers 1,186 miles (759,040 acres) and there are 449 miles of shoreline at the top of the conservation pool (1,120.43 feet mean sea level). Beaver Lake is one of six multi-purpose projects constructed in the White River Basin for the control of floods, generation of hydroelectric power, public water supply, and recreation. Beaver Lake was included in the comprehensive plan for flood control and other purposes in the White River Basin by the Flood Control Act of 1954 and authorized for water supply in the Water Supply Act of 1958. Construction of the dam began in 1960 and was completed in 1966. The original Water Control Manual, developed in 1963 and amended in 1998, provide direction to operate the dam to achieve project purposes.

Beaver Dam was evaluated by a risk assessment team as part of an August 2016 Periodic Assessment (PA). Based on the results of this risk assessment, the incremental risks are higher than previously understood. An incremental risk is defined as the risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping or undergo component malfunction or misoperation. The consequences are typically due to downstream inundation, but loss of the pool can result in consequences in the pool area upstream of the dam. In addition, a residual risk has been identified with high life loss estimates, which contributed to Beaver Dam being classified as a Dam Safety Action Classification (DSAC) 3 (Moderate Urgency). A residual risk is defined as a risk in the pool area and downstream of the dam at any point in time.

During the PA, access to and control of the Tainter gates was identified to be restricted above elevation 1,132.5 feet by flood waters. The water control manual states that the gates must be

fully opened at this point, but at this elevation the catwalk becomes submerged and at elevation 1,133.5 feet the Tainter gate operating machinery decks are submerged, making it impossible to make any gate changes. If the gates cannot be fully controlled there is a risk of overtopping of the dam, main embankment, and dikes. The gates must be opened before access to the controls is restricted. The window of time between identifying that the pool is likely to exceed the critical elevation and the pool actually doing so will likely be short, making getting the gates fully open challenging and giving little or no warning time to people downstream of the dam. Additionally, the sudden change to a full gate opening will result in more than a doubling of the flow of the release; with an increase in discharge of more than 150,000 cubic feet per second. This rapid change in conditions poses a significant increase in risk to the downstream population.

To address the risk, an interim risk reduction measure (IRRM) that would modify the water control procedures and allow for opening of the gates sooner has been proposed. The IRRM is described in more detail in the Interim Risk Reduction Measures Plan, Beaver Dam, White River, Arkansas---2021 Major Update dated 02 April 2021 and approved on 27 April 2021.

As a multipurpose reservoir, Beaver Lake needs to store water to satisfy demands for hydropower and water supply, while managing flood risk. The volume of water required to provide hydropower and water supply during the Drought of Record marks the top of the "conservation pool." Above the conservation pool is the "flood pool," which is designed to hold water for a later, slower release, as measured by downstream river gages. The line between the flood pool and conservation pool is known as a "guide curve." At Beaver Lake, the guide curve varies by season, allowing the amount of water retained for flood risk to be lower in the dry season.

In the case of the IRRM, the impacts of this change can be assessed by reference to river gages at Newport and Georgetown, Arkansas, before and after 1998. The IRRM proposes a hybrid of pre- and post- 1988 guide curves, holding the volume of water used before 1998 while timing staged water releases that were implemented after 1998. This allows all five of the White River System of reservoirs to evacuate rainfall runoff more efficiently. Using the pre-1998 seasonal guide curves combined with the post-1998 timing for stage transition, more aggressive releases can be made from flood pool during months most likely to receive runoff producing rainfall. By targeting higher seasonal regulating stages in wet years, USACE regains flood storage in a faster manner. This operational modification lowers both the frequency and duration of high pool events at Beaver Lake. The annual chance of a scenario near the 1132.5 feet range becomes 4 to 5 times less likely. The shorter duration of time near the top of flood pool (sometimes called a perched pool) at Beaver Lake has the added benefit of providing more storage for late season storms.

Implementation of the IRRM has proven through careful analysis to be an effective tool to address the urgent need to reduce life loss risk at Beaver Lake without increasing life loss risks at other White River Lakes. With this change, the FRM storage can be more efficiently evacuated, reducing the risk to the upper and lower river valleys. The estimated population at risk will be reduced on the order of 1000 people per day by implementing this operational interim risk reduction measure.

Potential impacts from implementing the operational IRRM are anticipated to be similar to those observed over the last 50 years, which have been less than significant. The operational IRRM was developed based on experience during pre-1998 and current operational curves and optimizes both to reduce the extreme danger to the human and natural environment during drought and flood conditions. With this action, smaller releases can be made sooner which reduces the potential for more significant impacts from larger surcharge releases (which is above the flood pool). Additionally, the action evacuates the perched pool faster which avoids impacts to sensitive karst and bottomland habitats as well as recreational facilities and properties upstream of the dam.

## **1.2 PROJECT AREA**

Beaver Dam is located in the Northwest corner of Arkansas on the White River at mile 609, in Benton and Carroll counties. The impoundment above Beaver Dam forms Beaver Lake. The watershed basin for Beaver Lake covers 1,186 square miles (759,040 acres) and there are 449 miles of shoreline at the top of the conservation pool (1,120.43 feet mean sea level).

Downstream of Beaver Dam the White River flows through three additional impoundments forming Table Rock Lake, Lake Taneycomo, and Bull Shoals Lake. Two of the impoundments, Table Rock Dam and Bull Shoals Dam are managed by the USACE while the third, Power Site Dam forming Taneycomo Lake, is privately owned and operated by Empire Electric Company. The White River converges with the Mississippi River near Rosedale, Mississippi. The White River Basin drains 30,452 square miles (19,489,255 acres) of north-central Arkansas and south-central Missouri.

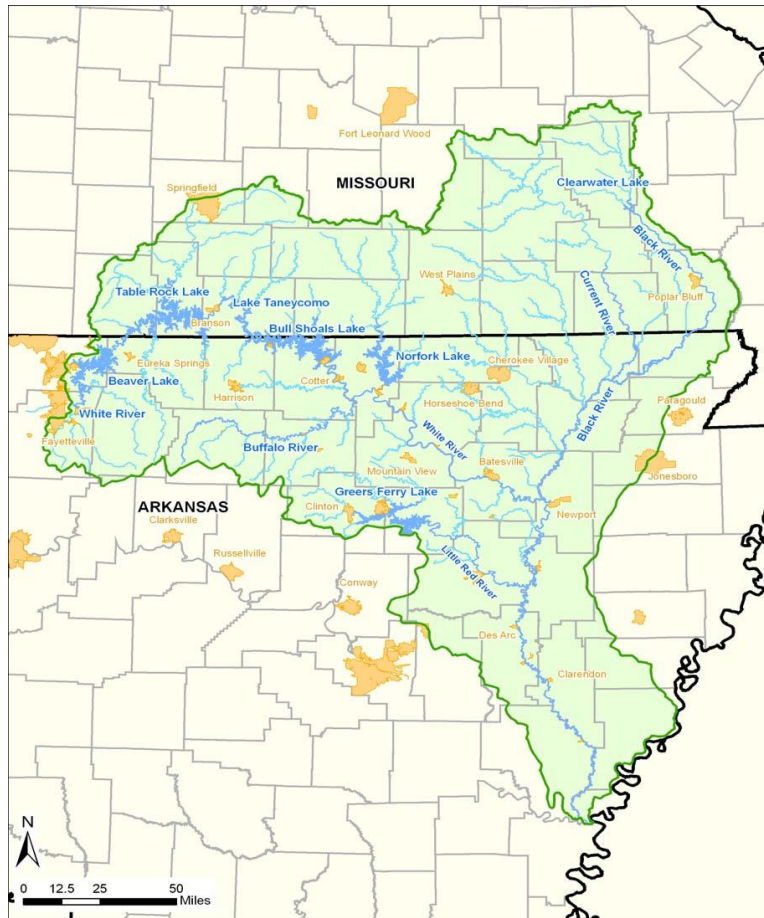


Figure 1. White River Basin

### 1.3 PURPOSE AND NEED

The US Army Corps of Engineers, Little Rock District (USACE) prepared this Environmental Assessment (EA) to evaluate and disclose the potential impacts to the natural and human environment from modifying the authorized and implemented Operational Interim Risk Reduction Measure Plan (IRRMP) at Beaver Dam, White River, Arkansas. In 2021 the IRRMP was revised to include an additional operational Interim Risk Reduction Measure (IRRM) to allow for water control operations that evacuate the flood storage more efficiently than the previous water control plan. The action was authorized as an “urgent” need to reduce the threat to life safety, property, and valuable natural resources under an emergency action under CEQ NEPA Regulations (40 CFR 1506.11) and National Environmental Policy Act Guidance issued by CEQ on 14 September 2020 (85 FR 60137) as identified in a Memorandum for Record dated 28 July 2021 (Appendix D).

### 1.4 ENVIRONMENTAL ASSESSMENT (EA) SCOPE

The scope of this EA is to identify and evaluate the environmental effects that could result from implementation of the proposed plan compared with three alternatives. The proposed modification will be further discussed in Chapter 2.0.

## **2.0 ALTERNATIVES**

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This chapter describes and compares four alternatives considered. The No Action Alternative, Hybrid pre/post 1998 Plan, Hybrid Crop Planting Plan, and Springtime Lake Drawdowns Plan. Each alternative is described below with focus on Beaver Lake. Some alternatives considered would require or cause changes downstream of Beaver Lake and are discussed as appropriate alongside Beaver Lake. Effects of the alternatives are discussed by identification of changes at specific gauges located at Beaver Lake, Table Rock Lake, Bull Shoals Lake, White River at Newport, and White River at Georgetown.

No alternatives considered would require mitigation to offset negative impacts.

### **2.1 NO ACTION**

The future without-project condition (FWOP), also known as the “No Action” Alternative, is the most likely condition expected to occur in the future in the absence of the proposed action or action plans and, in this case, in the absence of the 2021 IRRM. For this EA, the No Action is maintaining the current guide curves without modification. Under the No Action Alternative, Beaver Lake would continue to operate at flood pool levels for over 60% of the year. Under this alternative, the capacity for additional storage is limited. During spring rains this results in impacts to unsafe operating conditions due to position of dam operation equipment and also increases the occurrence of surcharge releases which are undesirable.

### **2.2 HYBRID PRE/POST 1998 PLAN**

The hybrid pre/post 1998 plan is a combination of the 1998 water control plan and the current plan. Under this plan at Beaver Lake, surcharge releases would be prolonged until the pool was 1.5 feet below the top of closed gates and would also double the minimum flood release in certain circumstances. Analysis of this alternative indicated that Beaver Lake would decrease the time at flood pool and increase the time at conservation pool. Minimal impacts to Table Rock Lake and Bull Shoals Lakes were indicated. The plan would shift time the White River is at 12 feet during the summer growing season to either 21 feet or 18 feet which directly affects crop production within the floodplain of the river.

### **2.3 HYBRID CROP PLANTING PLAN (RECOMMENDED PLAN)**

The hybrid crop planting plan is a modification of the hybrid pre/post 1998 plan to reduce the time the White River is maintained at 18 feet in the late spring which directly impacts timing of crop plantings downstream of the impoundments. Like the hybrid pre/post 1998 plan, at Beaver Lake, surcharge releases would be prolonged until the pool was 1.5 feet below the top of closed gates and would also double the minimum flood release in certain circumstances. Additional changes from the no action plan were proposed to adjust guide curves downstream of the impoundments along the White River at Newport and Georgetown. Analysis of this alternative indicated that Beaver Lake would decrease the time at flood pool and increase the time at conservation pool. At Table Rock Lake, a slight decrease in time at flood pool and summer pool are expected with an equal increase in time at top of winter pool. Minimal impacts to Bull Shoals Lake were identified. Along the White River at Newport and Georgetown, the river would be below 12 feet more often by maintaining winter targets (24 feet) two weeks later into the spring.



## 2.4 SPRINGTIME LAKE DRAWDOWNS

Input from the public frequently suggests lowering the four USACE management lakes before spring rains to increase available capacity for storage of the spring rains without requiring an increase of flow downstream to the White River negatively impacting crop production. In order to accommodate average high spring rains, the pools would have to be reduced beyond what is proposed in the other alternatives. In addition to other missions, the lakes are managed for water supply and hydropower capacities. If lake storage is reduced and the spring rains do not occur, a significant risk of not being able to maintain minimum flows to support water supply and hydropower would occur. This risk is not necessary when other alternatives exist that meet mission objectives while minimizing risks and impacts to crop production. Figure 2 (below) displays estimated capacity for various springtime lake drawdown scenarios with the recommended plan (RP) displayed as IRRM Improvement in orange. As shown, the recommended plan maintains higher storage than springtime drawdown scenarios. As this alternative is not compatible with management missions of the lakes and does not maximize storage, it is not considered further in this analysis.

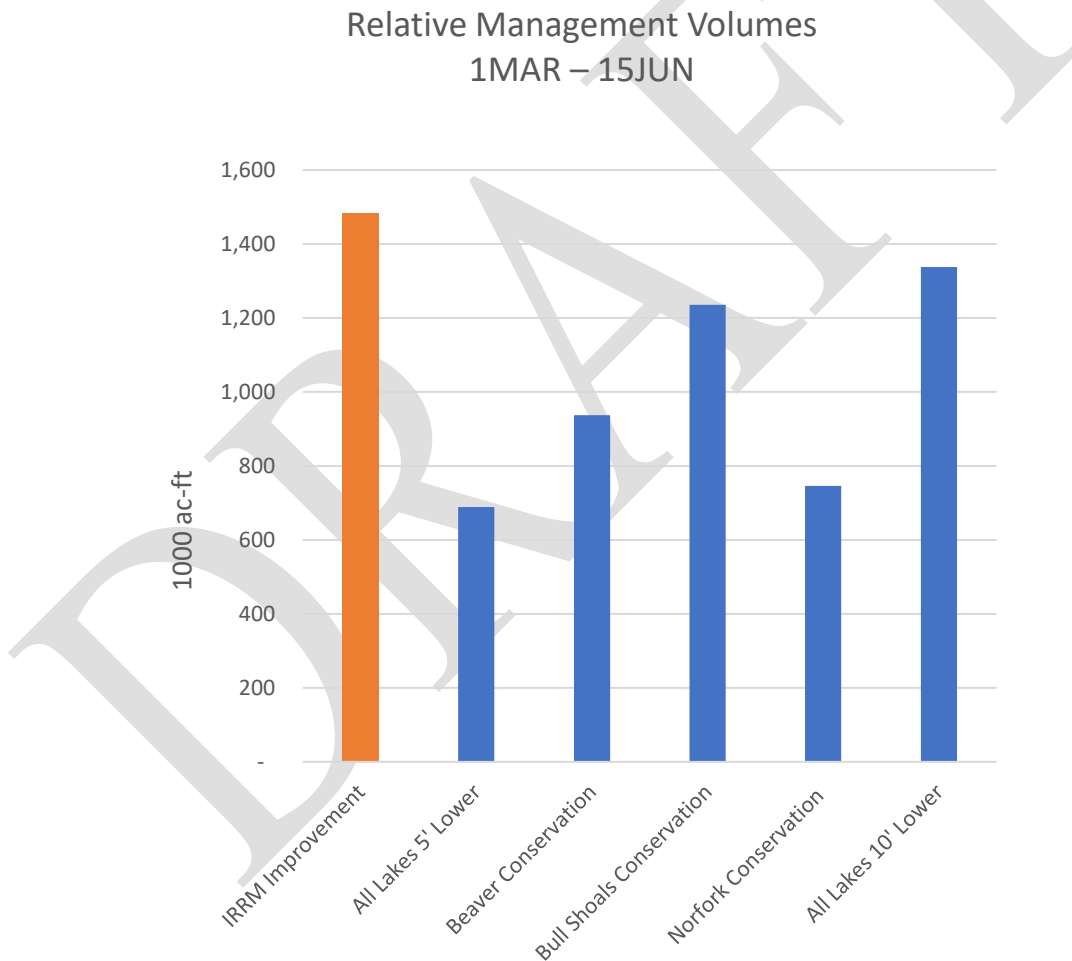


Figure 2. Chart of relative storage management capacity for various springtime drawdown scenarios.

## **3.0           AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

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The adjustments made to the IRRMP by implementation of an additional IRRM were reviewed to determine impacts to the natural and human environment. This section provides a description of the affected environment and the impacts that could result from implementation of the RP alternative. Effects can be either beneficial or adverse and are considered over a 50-year period of analysis.

### **3.1           OVERVIEW**

The White River Basin extends over 30,452 square miles in north-central Arkansas and south-central Missouri with the Beaver Lake Dam impoundment being the upper reaches of the basin covering 1,186 square miles. The project area includes the impoundment of Beaver Lake and the Beaver Lake Dam outflow into the White River which flows into Table Rock Lake less than three miles downstream.

Beaver Lake is located northeast of the Fayetteville-Springdale-Rogers, Arkansas Metro Area in north-western Arkansas. Beaver Lake was included in the comprehensive plan for flood control and other purposes in the White River Basin by the Flood Control Act of 1954 and authorized for water supply in the Water Supply Act of 1958. Construction of the dam began in 1960 and was completed in 1966. The lake is managed for flood control, generation of hydroelectric power, public water supply, and recreation. Table Rock Lake, immediately downstream of the Beaver Lake Dam is managed for flood control, generation of hydroelectric power, and recreation. The White River flows into Lake Taneycomo followed by Bull Shoals Lake then continues to the Mississippi River at the Arkansas state line. While Lake Taneycomo is not operated by the Corps, Bull Shoals Lake is managed for flood control, generation of hydroelectric power, water supply and recreation. All lakes in the White River System are also managed for other purposes, which may include environmental stewardship.

Both Benton and Washington counties comprise a portion of the Fayetteville--Springdale--Rogers Metropolitan Statistical Area (MSA) that is one of the fastest growing regional economies in the nation. Population density is 40 persons per square mile in Carroll County (primarily rural), and 236 and 213 in Washington and Benton counties (more urbanized given their proximity to Fayetteville). While the area is developing at an extremely rapid pace, currently the lands surrounding Beaver Lake are primarily rural within a deciduous forest with intermixed evergreen forests. Some lands are managed for pasture or hay production, but they are a minor component of the overall landscape. Land ownership bordering the USACE managed lake are largely private except for 12,055 acres owned and managed by the state of Arkansas (Hobbs State Park Conservation Area WMA) located adjacent to the south side of the lake. There are eleven USACE managed parks positioned at various locations around the Lake. Land development along the shore of the lake is limited to only a few locations consisting primarily of upscale single-family homes on large lots.

Lands along the White River below the Beaver Lake Dam outfall are similar to those surrounding the lake, primarily rural within a deciduous forest with intermixed evergreen forests.

Lands managed for pasture or hay production occur more frequently but continue to be a minor component until past Bull Shoals Lake.

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### 3.2 RESOURCES CONSIDERED FOR ANALYSIS

The following resources may be affected by the Recommended Plan: Threatened and Endangered Species, Cultural Resources, Environmental Justice (EJ), Socioeconomic Issues, and Prime and Unique Farmland.

Table 1 identifies resources considered for impact analysis and potential impacts from the alternatives. Not all resources present in the project area would be affected by the implementation of the recommended plan (RP) because there would either be no impact or insignificant/negligible impact.

Table 1. Resources Considered

Resource	No Action Alternative	Hybrid Pre/Post 1998 Plan	Hybrid Crop Planting Plan (RP)	Considered Further
Vegetation	No ground disturbing activities that would directly impact vegetation are proposed. No adjustments to guide curves that could potentially impact vegetation would occur.	No ground disturbing activities that would directly impact vegetation are proposed in either alternative. Potential impacts to vegetation would occur from increased or decreased time of inundation from adjustments of the operation guide curves. As the changes are expected to be minor and only temporal in nature and not extents; no impacts to vegetation are expected.		No
Aquatic Nuisance Species	Under the no action alternative and under modifications of the alternatives no results would cause an increase in the number of vessels that could introduce invasive aquatic species. No impacts to aquatic nuisance species are expected.			No
Wetland Resources	No ground disturbing activities that would directly impact wetlands are proposed. No adjustments to guide curves that could potentially impact wetland resources would occur.	No ground disturbing activities that would directly impact wetlands are proposed in either alternative. Potential impacts to wetlands would occur from increased or decreased time of inundation from adjustments of the operation guide curves. As the changes are expected to be minor and only temporal in nature and not extents; no impacts to wetlands are expected.		No
Wildlife	No impacts to wildlife are expected as no impacts to areas of inundation have been identified.	No impacts to wildlife are expected as no impacts to areas of inundation have been identified. Changes in the timing and length of inundation are expected to be minor which is also expected to have no impact on wildlife.		No

Resource	No Action Alternative	Hybrid Pre/Post 1998 Plan	Hybrid Crop Planting Plan (RP)	Considered Further
Threatened and Endangered Species	Impacts are further disclosed in Section 3.3.			Yes
Cultural Resources	Under the no action alternative, the sites will continue to be at risk via formation processes.	This alternative would have no effect on cultural resources in the project area.	This alternative would have no effect on cultural resources in the project area.	No
Air Quality	No counties within which the project is located are identified as Nonattainment for the six NAAQS standards. No alternatives will have an impact on air quality.			No
Noise	No effect on noise in the surrounding communities has been identified for any alternative.			No
Water Quality	Under all alternatives, no expansion of inundation areas or increase or decrease in flows outside of what currently occur are proposed. No impacts to water quality are expected.			No
Hazardous, Toxic, and Radioactive Waste	None of the alternatives will have an impact on potential HTRW resources as no increase in areas of inundation are proposed.			No
Socioeconomics	Under the no action alternative, no impact on the use of the lakes or areas around the lakes has been identified.	This alternative would potentially extend the length of inundation downstream of the lakes where crop production is prevalent. Potential impacts to farmland are discussed in Section 3.6. No impacts on the use of the lakes are identified.	Under this alternative, no impacts on the use of the lakes or areas around the lakes has been identified	No
Environmental Justice (EJ)	Impacts are further disclosed in Section 3.5.			Yes
Prime and Unique Farmlands	Prime farmland is present downstream of the project area along the White River, primarily located generally south of Batesville, Arkansas. Impacts are further discussed in Section 3.6.			Yes

<b>Resource</b>	<b>No Action Alternative</b>	<b>Hybrid Pre/Post 1998 Plan</b>	<b>Hybrid Crop Planting Plan (RP)</b>	<b>Considered Further</b>
Recreational Resources	No alternative is expected to have impacts to the recreational use of any portion of the White River System.			No
Roadways and Traffic	No alternative is expected to have impacts to roadways or traffic as the potential changes are confined to the extent of existing impoundments.			No

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### 3.3 THREATENED AND ENDANGERED SPECIES

Wildlife species may be classified as threatened or endangered under the Endangered Species Act (ESA) of 1973 (16 USC § 1531 et seq.). USFWS oversees protection of non-marine species. The ESA ensures that federal agencies and departments use their authorities to protect and conserve endangered and threatened species. Section 7 of ESA requires that federal agencies prevent or modify any projects authorized, funded, or carried out by the agencies that are “likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species.”

#### 3.3.1 Affected Environment

Twenty-four species listed as endangered, threatened, or candidate were identified and considered based upon the official species list for the project area received through the USFWS IPaC (Table 2).

Of the 24 identified species, eight are known to occur within the project area with suitable habitat present. These nine species are Piping Plover (*Charadrius melodus*), Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*), Pink Mucket (*Lampsilis abrupta*), Scaleshell Mussel (*Leptodea leptodon*), Ozark Cavefish (*Amblyopsis rosae*), Rabbitsfoot (*Quadrula cylindrica cylindrica*), Snuffbox Mussel (*Epioblasma triquetra*), and Gray Bat (*Myotis grisescens*). Critical habitat for Rabbitsfoot is located downstream of the project area on the White River.

Table 2. ESA-listed Species Identified as Potentially Occurring in the Project Area

Species	Agency	Status*	Habitat Needs	Occurrence In or Near the Project Area
<b>Birds</b>				
Eastern Black Rail <i>Laterallus jamaicensis ssp. jamaicensis</i>	USFWS	T	Wetland dependent requiring dense overhead cover. Occur across an elevational gradient that lies between lower and wetter portions of the marsh and their contiguous uplands.	No – No suitable habitat
Piping Plover <i>Charadrius melodus</i>	USFWS	T	Migration habitat selection is opportunistic, but a preference is given towards exposed mud and/or sand/mud substrates.	Yes – suitable habitat present
Rufa Red Knot <i>Calidris canutus rufa</i>	USFWS	T	Migrating and wintering knots use sandy beaches, saltmarshes, lagoons, mudflats of estuaries and bays, and mangrove swamps that contain an abundance of invertebrate prey.	No – No suitable habitat
Whooping Crane <i>Grus americana</i>	USFWS	EX	Winters along the Gulf Coast and breeds in Canada. Migration habitat is identified as unvegetated sandbars with open visibility.	No – No suitable habitat; project located outside of migration corridor
<b>Amphibians</b>				
Ozark Hellbender <i>Cryptobranchus alleganiensis bishopi</i>	USFWS	E	Found in natural spring fed streams with limestone rock overhangs and other large boulders which create shelter.	Yes – suitable habitat present
<b>Fishes</b>				
Ozark Cavefish <i>Amblyopsis rosae</i>	USFWS	T	Dark cave waters, primarily clear upwelling streams with chert or rubble bottom and occasionally pools over silt or sand bottom.	Yes – suitable habitat present
Yellowcheek Darter <i>Etheostoma moorei</i>	USFWS	E	Found in high-gradient headwater tributaries with clear water, permanent flow, moderate to strong riffles, and gravel, rubble, and boulder substrates.	No – Endemic to the Little Red River watershed outside project area



Species	Agency	Status*	Habitat Needs	Occurrence In or Near the Project Area
<b>Insects</b>				
Monarch Butterfly <i>Danaus plexippus</i>	USFWS	C	Mainly found in prairies, meadows, grasslands and along roadsides, across most of North America, where milkweed, their host plant, is prominent.	No – No suitable habitat
<b>Clams</b>				
Neosho Mucket <i>Lampsilis rafinesqueana</i>	USFWS	E	Associated with shallow riffles and runs comprised of gravel substrate with moderate to swift currents.	No – Occurs in Illinois River Watershed outside project area
Rabbitsfoot <i>Quadrula cylindrica cylindrica</i>	USFWS	T	Located within stable flow regimes with sand and gravel substrates. Frequently found in locations with lower velocities.	Yes – suitable habitat present
Snuffbox Mussel <i>Epioblasma triquetra</i>	USFWS	E	Associated with swift currents of riffles and shoals and wave-washed shores of lakes over gravel and sand with occasional cobble and boulders.	Yes – suitable habitat present
Curtis Pearlymussel <i>Epioblasma Florentina curtisii</i>	USFWS	E	Found in flowing, silt free transitional streams with shallow, stable riffles and runs.	No – restricted to upper White River watershed outside project area
Pink Mucket (pearlymussel) <i>Lampsilis abrupta</i>	USFWS	E	Associated with medium to large rivers larger than 20 meters in width and depths from 0.5 to 8 meters. Substrates vary from silt to boulders, rubble, gravel, and sand.	Yes – found downstream in White River below project area
Scaleshell Mussel <i>Leptodea leptodon</i>	USFWS	E	Medium to large rivers with low to medium gradients. A variety of substrates is utilized but most often found in stable riffles and runs with slow to moderate current velocity.	Yes – suitable habitat present
Speckled Pocketbook <i>Lampsilis streckeri</i>	USFWS	E	Located in pools and runs with small to large boulders with some sand and/or gravel accumulation.	No – restricted to upstream of Greers Ferry Reservoir outside project area
<b>Mammals</b>				
Gray Bat <i>Myotis grisescens</i>	USFWS	E	Require limestone cave systems. Species are found in the oak-hickory forests of the Ozark highlands. Caves near water are frequently selected.	Yes – suitable habitat present adjacent project area and occupied

Species	Agency	Status*	Habitat Needs	Occurrence In or Near the Project Area
Indiana Bat <i>Myotis sodalis</i>	USFWS	E	Found in forested wetlands and riparian habitats such as hardwood and mixed forest woodlands.	No – no suitable habitat present
Northern Long-eared Bat <i>Myotis septentrionalis</i>	USFWS	T	Utilize limestone cave systems. Summer roosting habitat includes a variety of tree species.	No – suitable habitat present but no known occupancy
Ozark Big-eared Bat <i>Corynorhinus (=Plecotus) townsendii ingens</i>	USFWS	E	Require limestone and sandstone talus caves. Species are found in the oak-hickory forests of the Ozark highlands.	No – suitable habitat present but no known occupancy
Tricolored Bat <i>Perimyotis subflavus</i>	USFWS	PE	Utilize caves and mines during winter (some winter usage of water wells in southern U.S. where caves are sparse). During the spring, summer and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves.	Yes – suitable habitat present adjacent the project area
<b>Crustaceans</b>				
Benton County Cave Crayfish <i>Cambarus aculabrum</i>	USFWS	E	Found in aquatic environment of Ozark Highland cave streams. Habitat specifics of the species is not well understood.	No – species is only known in four locations outside of the project area
Hell Creek Cave Crayfish <i>Cambarus zophonastes</i>	USFWS	E	Found on muddy stream bottoms, cave stream walls, and other in stream habitats. Only known in three cave systems known as Hell Creek Cave, Nesbitt Spring, and Yellville.	No – recharge zone of known caves outside project area
<b>Snails</b>				
Tumbling Creek Cavesnail <i>Antrobia culveri</i>	USFWS	E	The species is only known to the Tumbling Creek Cave in Taney County, Missouri.	No – recharge zone of known caves outside project area
<b>Flowering Plants</b>				
Missouri Bladderpod <i>Physaria filiformis</i>	USFWS	T	Open limestone, dolomite, and shale glades. Requires natural disturbances to maintain open habitat without tree and shrub encroachment.	No – suitable habitat present
Pondberry <i>Lindera melissifolia</i>	USFWS	E	Found in seasonal, precipitation fed depressions that maintain wetlands until drying out at peak of summer	No – suitable habitat not present
<b>Reptiles</b>				

Species	Agency	Status*	Habitat Needs	Occurrence In or Near the Project Area
Alligator Snapping Turtle <i>Macrochelys temminckii</i>	USFWS	PT	Found in deeper water of large rivers and their major tributaries, small streams, lakes, reservoirs, and oxbows. Individuals often select sites with structure over open water.	Yes – suitable habitat present

\*E = Endangered, T = Threatened, C = Candidate, EX = Experimental population, non-essential, PE = Proposed Endangered, PT = Proposed Threatened

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### 3.3.2 Environmental Consequences

Ten protected species are known to occur within the project area with suitable habitat present. These ten species are Piping Plover (*Charadrius melodus*), Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*), Pink Mucket (*Lampsilis abrupta*), Scaleshell Mussel (*Leptodea leptodon*), Ozark Cavefish (*Amblyopsis rosae*), Rabbitsfoot (*Quadrula cylindrica cylindrica*), Snuffbox Mussel (*Epioblasma triquetra*), Gray Bat (*Myotis grisescens*), Tricolored Bat (*Perimyotis subflavus*), and Alligator Snapping Turtle (*Macrochelys temminckii*).

#### 3.3.2.1 No Action Plan

The No Action Plan would have adverse effects on species only outside of normal operations. As the river system is currently managed, flow regimes are managed within low and high flows which meet requirements of the various species. During spring rains, the capacity is not present to contain an increase in precipitation and runoff. Due to this condition surcharge discharges occur above desired flow rates, negatively impacting a variety of resources. This includes ESA-listed species with potential negative effects as surcharge discharges increase the risk of scour and displacement of individuals. As such, the No Action Plan, under certain circumstances, may effect ESA-listed species.

#### 3.3.2.2 Hybrid Pre/Post 1998 Plan and Hybrid Crop Planting Plan (RP)

Both the Hybrid Pre/Post 1998 Plan and Hybrid Crop Planting Plan (RP) have similar potential impacts to ESA-listed species. Minimum and maximum flows have been previously identified to protect various resources including the infrastructure, public and private land, land use, recreation, etc. These resources also include wildlife and ESA-listed species. As these minimum and maximum flows have been previously identified, they were considered the limits for changes at Beaver Dam with operational changes occurring between these limits.

No effects on threatened and endangered species have been identified for either the hybrid pre/post 1998 plan and the Hybrid Crop Planting Plan, the recommended plan. The no effects determinations are based on various attributes of each plan but are largely due to the nature of how the series of dams are operated. Table 3 shows the effects determinations for each species for the recommended plan.

Table 3. Effects Determination for ESA-listed Species

Species	Agency	Status	Effect Determination
<b>Birds</b>			
Eastern Black Rail ( <i>Laterallus jamaicensis ssp. Jamaicensis</i> )	USFWS	T	No effect
Piping Plover ( <i>Charadrius melodus</i> )	USFWS	T	No effect
Rufa Red Knot ( <i>Calidris canutus rufa</i> )	USFWS	T	No effect
Whooping Crane ( <i>Grus americana</i> )	USFWS	EX	No effect
<b>Amphibians</b>			
Ozark Hellbender ( <i>Cryptobranchus alleganiensis bishop</i> )	USFWS	E	No effect

Species	Agency	Status	Effect Determination
<b>Fishes</b>			
Ozark Cavefish ( <i>Amblyopsis rosae</i> )	USFWS	T	No effect
Yellowcheek Darter ( <i>Etheostoma moorei</i> )	USFWS	E	No effect
<b>Insects</b>			
Monarch Butterfly ( <i>Danaus plexippus</i> )	USFWS	C	No effect
<b>Clams</b>			
Neosho Mucket ( <i>Lampsilis rafinesqueana</i> )	USFWS	E	No effect
Rabbitsfoot ( <i>Quadrula cylindrica cylindrica</i> )	USFWS	T	No effect
Snuffbox Mussel ( <i>Epioblasma triquetra</i> )	USFWS	E	No effect
Curtis Pearlymussel ( <i>Epioblasma Florentina curtisii</i> )	USFWS	E	No effect
Pink Mucket (pearlymussel) ( <i>Lampsilis abrupta</i> )	USFWS	E	No effect
Scaleshell Mussel ( <i>Leptodea leptodon</i> )	USFWS	E	No effect
Speckled Pocketbook ( <i>Lampsilis streckeri</i> )	USFWS	E	No effect
<b>Mammals</b>			
Gray Bat ( <i>Myotis grisescens</i> )	USFWS	E	No effect
Indiana Bat ( <i>Myotis sodalis</i> )	USFWS	E	No effect
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )	USFWS	T	No effect
Ozark Big-eared Bat ( <i>Corynorhinus (=Plecotus) townsendii ingens</i> )	USFWS	E	No effect
Tricolored Bat ( <i>Perimyotis subflavus</i> )	USFWS	PE	No effect
<b>Crustaceans</b>			
Benton County Cave Crayfish ( <i>Cambarus aculabrum</i> )	USFWS	E	No effect
Hell Creek Cave Crayfish ( <i>Cambarus zophonastes</i> )	USFWS	E	No effect
<b>Flowering Plants</b>			
Missouri Bladderpod ( <i>Physaria filiformis</i> )	USFWS	T	No effect
Pondberry ( <i>Lindera melissifolia</i> )	USFWS	E	No effect
<b>Reptiles</b>			
Alligator Snapping Turtle ( <i>Macrochelys temminckii</i> )	USFWS	PT	No effect

### 3.4 CULTURAL RESOURCES

Evidence of Human habitation in the Ozark highland Region of northern Arkansas dates to the Paleoindian period (13,500-10,500 BP). Beaver Lake was formed by the impoundment of the White River and it is located within the Beaver reservoir watershed. The study area is characterized by hills dissected by narrow ridge tops and steep valleys. Sediments in the region consist of cherty silts, sandy clays, and cherty clays form the cherty limestone of the Mississippian Boone Formation. The recorded sites in the project area are mostly dated to the Precontact period, which includes Dalton Period (10,500-9,500 BP), Archaic Period (9,500 – 2,700 BP), the Woodland Period (2,700-1,000 BP), and the Mississippian Period (1,000-400

BP). These sites contain lithic scatters, shell, middens, campsites, faunal remains and, in some cases, human burials. Post contact and historic artifacts have been found in the project area in the form of ceramics, metal, glass, and building materials. The sites are spread out throughout the Beaver Lake area. Many of the precontact sites are located within the White River flood plain and most are submerged beneath the surface of Beaver Lake.

### **3.4.1 Affected Environment**

The USACE has reviewed of the Arkansas Archeological Survey's Automated Management of Archeological Sites Data in Arkansas (AMASDA) database to better determine the existing conditions and potential risks of encountering cultural resources. There are 96 previously recorded precontact and historical archaeological cultural sites and one National Register of Historic Places (NRHP) structure registered within one mile of Beaver Lake. The Shaw-Blair House was constructed between 1967 and 1969 is listed under criterion C for its use of organic modern style of architecture and recognized for local significance.

There have been four surveys conducted in the project location in 1980, 1984, 2019, and 2021, three of which have partially overlapped survey areas (Bennett and Swanda 1984, Archaeological Consultants, inc. and Coastal Environments, inc. 2019, Amaterra Environmental Inc 2021). Three of the project reports were available for analysis on AMASDA but the survey from 1980 was not available. Each of these surveys were sponsored by the USACE in support of operations and management of the lake and in support of future anticipated works.

### **3.4.2 Environmental Consequences**

There are seven previously recorded archaeological sites within the project area. Based on the Survey conducted in 2021 by Amaterra Environmental inc. for the Army Corps of Engineers, six of the sites (3BE1091, 3BE1093, 3BE1094, 3BE1095, 3BE0163/0287) are recommended as not eligible for inclusion in the NRHP. This recommendation is due to lack of characteristics necessary for inclusion. The seventh site (3BE1096) is also not eligible for inclusion in the NRHP, but it is recommended as unevaluated until Native American cultural experts can assess the site.

#### **3.4.2.1 No Action**

There are seven archaeological sites within the project area and any formation processes that currently affect these sites will continue into a future without the project. Based on the status of the sites from the most recent survey, sites that are located at or near the lake edge are either partially inundated or have been damaged by erosion. There is also evidence of looting and construction damage. These prehistoric sites will continue to be at risk from inundation, looters, and development. These formation processes may result in partial or total loss of historic properties.

#### **3.4.2.2 Hybrid Pre/Post 1998 Plan and the Hybrid Crop Planting Plan (RP)**

The proposed action for the Hybrid Pre/post 1998 plan includes releasing prolonged surcharges until the pool was 1.5 feet below the top of the closed Tainter gates and would double the minimum flood release in certain circumstances. The plan would decrease the time that Beaver Lake has at flood pool levels and increase the time at conservation pool level.

The proposed action for the Hybrid Crops Planting Plan is like the Hybrid Pre/post Plan. The changes in the plan focus on reducing the time the White River is maintained in the late spring to directly impact timing to allow efficient use of flood risk management measures. The proposed action would not change the lake level but would affect when the water would be drawn down to a specified bottom of flood pool that they go to now.

Based on the current information, there would be no effect to cultural resources for either of the proposed plans because the plan would not affect the overall level of the water, only the timing of the water will be drawn down. This determination is based on the purpose of the measure on the operation of the dam opening, and the current state of the cultural resources. Since the water level would not change, there is no effect on cultural resources that would differ than if no action was taken. Therefore, there would be no effect on the cultural resources inside the project area from the proposed actions. The Arkansas State Historic Preservation Office has reviewed the measure and concurs with the assessment that there will be no adverse effect to historic properties.

### **3.5 ENVIRONMENTAL JUSTICE**

Environmental justice (E.J.) 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.

As provided in the April 1998 U.S. Environmental Protection Agency (EPA) guidance, a minority population is defined as a group of people and a community experiencing common conditions of exposure or impact that consists of persons classified by the U.S. Census Bureau as Black, Asian, American Indian or Alaska Native, Hispanic, or other non-white persons, including those persons of two or more races. An aggregate of minority populations over 50% for the entire affected environment indicates increased scrutiny in the environmental justice analysis may be appropriate (e.g., to assess majority-minority populations) (EPA 2016a). The low-income population is defined as a group of people and a community that, as a whole, lives below the national poverty level.

#### **3.5.1 Affected Environment**

The project area is within the Census Block groups: 50070214042, 50070214043, 50070214051, 50070214052, 50070214053, 50070214071, 50070214072, 50070214073, 50070214081, 50070214082, 50070214091, 50070214092, 50159502011, 50159502013, 51430101011, 51430101012, 51430101013, 51430101014, 51430101083, 51430101091, and 51430101092 (U.S. Census Bureau 2023a through 2023u). The Block groups have a population of 26,584 people and an area of 350.73 mi<sup>2</sup> (309.82 mi<sup>2</sup> land and 40.91 mi<sup>2</sup> water). Of the 26,584 people, 22,237 people (84%) are reporting as white, 479 people (2%) are reporting as American Indian, 247 people (1%) are reporting as Black, 441 people (2%) are reporting as Asian, 99 people (0%) are reporting as Pacific Islander, 1,755 people (7%) are reporting as Other Race, and 1,326 people (5%) are reporting two or more races. A total of 2,987 individuals (11%) are reporting as Hispanic. A total of 21,021 individuals (79%) are ages above 18, while 1,299 (5%) individuals are between the ages of 0 and 4, 5,563 individuals (21%) are between 0 and 17, and 6,218 individuals (23%) are 65 or older. The census block would not be considered

a minority population because minorities do not represent more than 50 percent of the community.

The EPA EJSCREEN tool (v2.0) was used to identify E.J. populations in or near the project area. The EPA issued guidance in 2016 that when using EJSCREEN, any geographic regions at or above the 80th percentile nationally for any E.J. indexes should be considered for further review and outreach (EPA 2016b).

No socioeconomic indicators above the 80<sup>th</sup> percentile were identified (

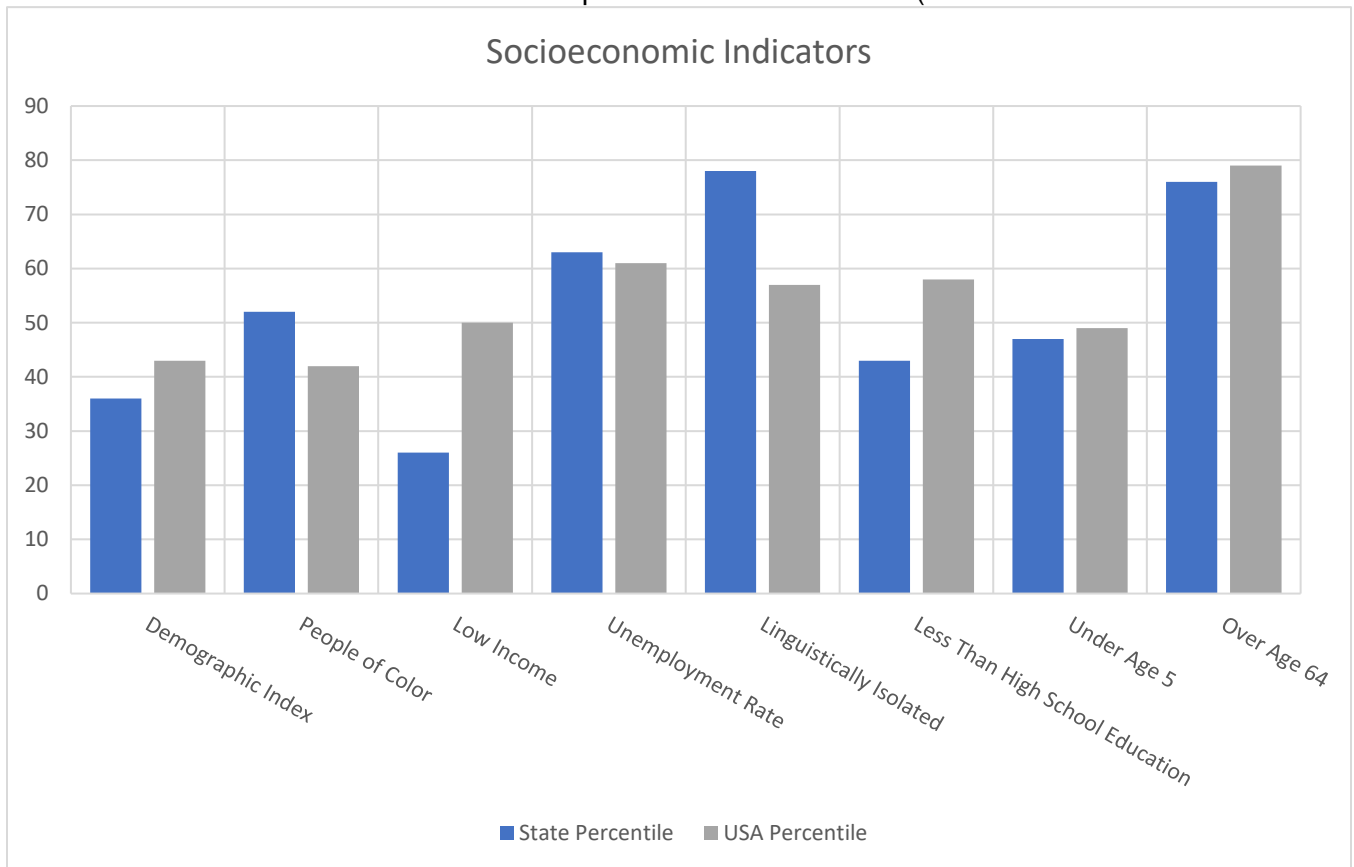


Figure 3). The 2017 National Emissions Inventory (NEI) indicates the only pollution and source indicator above the 80<sup>th</sup> percentile is 2017 Air Toxics Cancer Risk, 85<sup>th</sup> percentile of the U.S., 84<sup>th</sup> percentile of the state, and 84<sup>th</sup> percentile of the region (Figure 4).



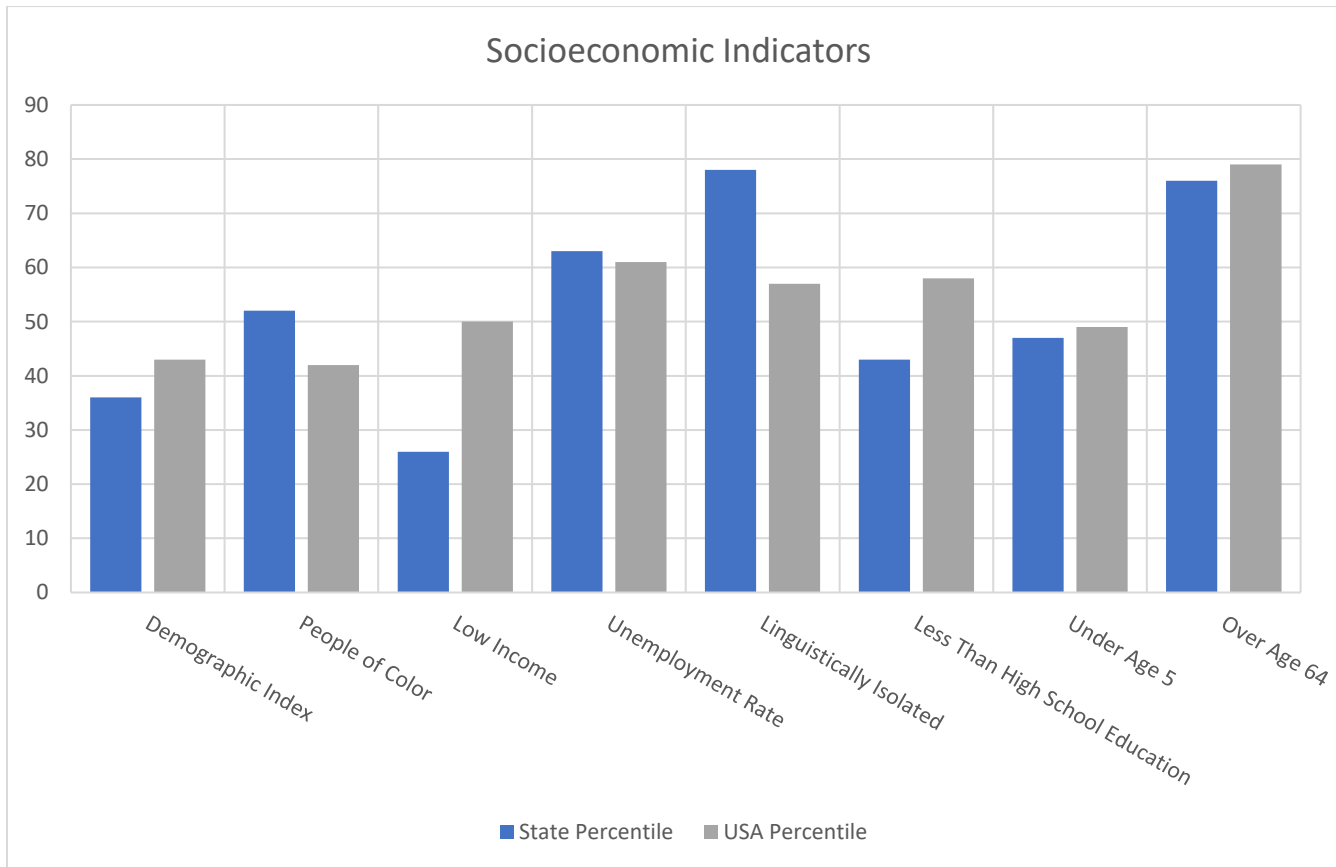


Figure 3. Socioeconomic Indicators for the Census Blocks of the Project Area Compared to All People’s Block Groups in the State and United States.

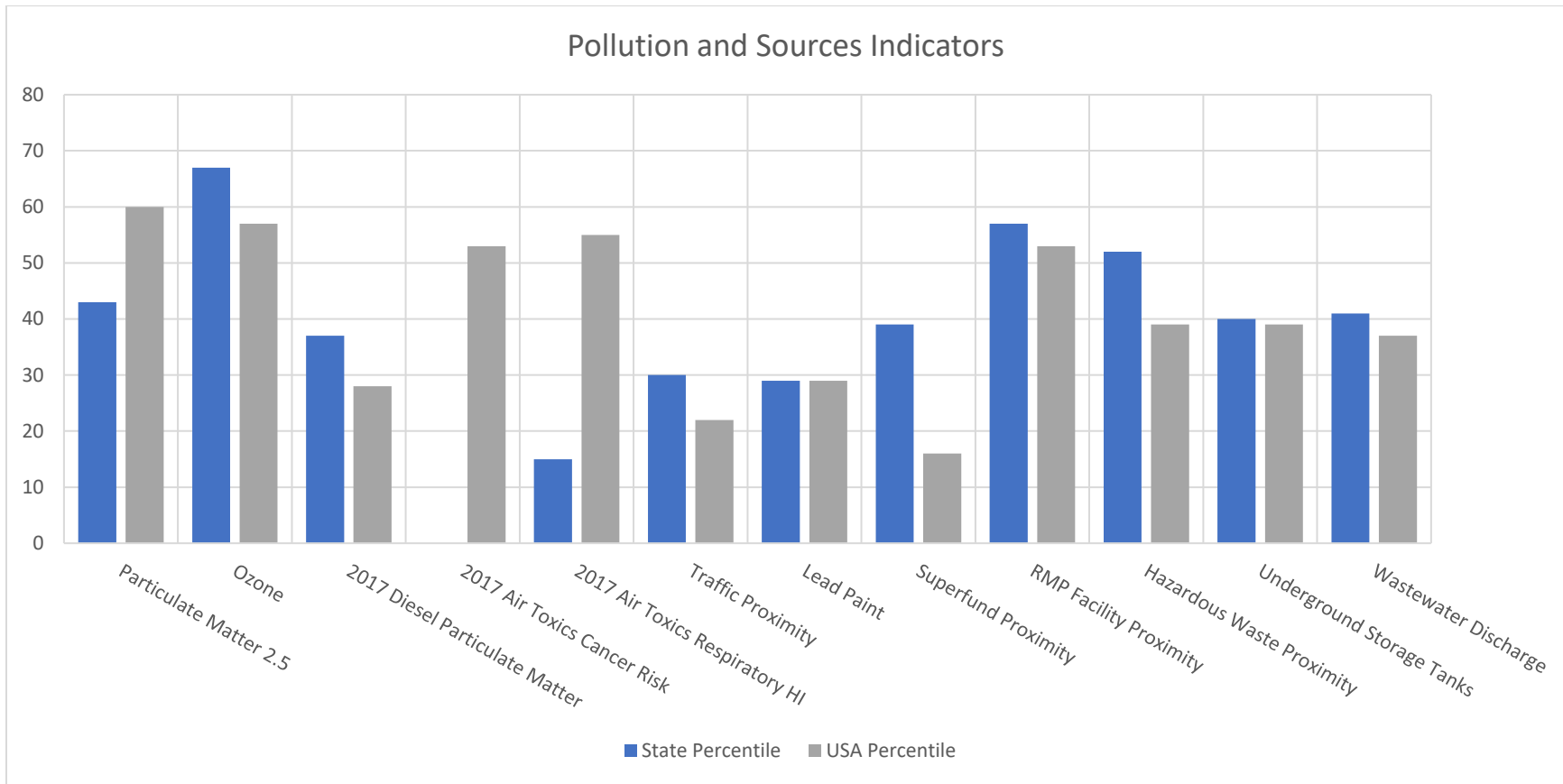


Figure 4. Pollution and Sources Indicators for the Census Blocks of the Project Area Compared to All People's Block Groups in the State and United States.

## **3.5.2 Environmental Consequences**

### **3.5.2.1 All Alternatives**

All alternatives would have the same effects on E.J. indices. As the action would not cause ground disturbance, vegetation changes, or activities (traffic) within the project area, no impacts are expected. No impact on the socioeconomics, job opportunities (unemployment rate), or cohesion of low-income communities in or near the census blocks and project area is anticipated.

When considering the other E.J. Indices specifically related to chemical and other adverse factors, no increases of particulate matter, ozone, or other air toxins have been identified nor proposed. No development that could increase exposure to lead paint or hazardous waste is planned.

No impacts on the E.J. community near the project area are anticipated under the No Action Alternative nor the Proposed Plan.

## **3.6 PRIME AND UNIQUE FARMLAND**

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs as determined by the Secretary of Agriculture. The Farmland Project Policy Act is intended to minimize the impact of Federal actions have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Prime farmland includes unique farmland, and land of statewide or local importance.

### **3.6.1 Affected Environment**

Prime farmland is not present immediately surrounding Beaver Lake. It is also not located immediately adjacent to downstream impoundments. Prime farmland is located downstream of Norfolk Lake along the White River.

### **3.6.2 Environmental Consequences**

Through management of impoundment pool elevations and downstream flows, prime and unique farmland can be directly impacted by inundation. Potential impacts to the prime farmland is dependent upon the timing and duration of inundation. Short duration, winter inundation is frequently identified as a positive effect on farmland by the introduction of sediment and nutrients. Longer duration, or permanent inundation, have negative effects on farmland including conversion out of farmland. Timing of inundation can also negative impact crop production by delaying seeding or planting and causing early harvest prior to inundation.

#### **3.6.2.1 No Action and Hybrid Crop Planting Plan (Recommended Plan)**

Under the No Action and Hybrid Crop Planting Plan no effect on prime farmland would occur. Short duration, winter inundation would still occur along the White River which is conducive to the crop production that occurs in the region.

### **3.6.2.2      *Hybrid pre/post 1998 plan***

The Hybrid pre/post 1998 plan would negatively impact prime farmland by increasing the duration and height of inundation along the White River. This directly affects crop production by causing a delay in spring planting which shortens the available growing season prevent crop production to full maturity reducing overall production.

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## **4.0 ENVIRONMENTAL COMPLIANCE**

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The following sections identify applicable environmental laws and regulations that are considered in the planning of this Project and the status of compliance with each.

### **4.1 NATIONAL ENVIRONMENTAL POLICY ACT**

This EA has been prepared to satisfy the requirements of all applicable environmental laws and regulations and in accordance with the CEQ's implementing regulations for NEPA, 40 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The revision of the 2016 MP is consistent with the USACE's Environmental Operating Principles.

### **4.2 ENDANGERED SPECIES ACT**

Current lists of threatened or endangered species were compiled for this EA. USACE has determined there would be no effect on any federally listed species or critical habitat resulting from the implementation of the recommended plan.

### **4.3 MIGRATORY BIRD HABITAT PROTECTION**

Sections 3a and 3e of EO 13186 direct federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential adverse effects on migratory birds. The implementation of the recommended plan will not negatively impact migratory birds or their habitat.

### **4.4 MIGRATORY BIRD TREAT ACT**

The Migratory Bird Treaty Act of 1918 extends federal protection to migratory bird species. The nonregulated "take" of migratory birds is prohibited under this act, like the prohibition of "take" of threatened and endangered species under the Endangered Species Act. The implementation of the recommended plan will not adversely impact migratory birds or their habitat.

### **4.5 CLEAN AIR ACT**

The Proposed Action complies with all state and federal CWA regulations and requirements and is regularly monitored by the USACE and OWRB for water quality. A state water quality certification pursuant to Section 401 of the CWA is not required for the recommended plan. There will be no change in the existing management of the reservoir that would impact water quality.

### **4.6 FARMLAND PROTECTION POLICY ACT**

The FPPA's purpose is to minimize how federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. Prime Farmland is not present in the 8.5 acres considered for this EA. The implementation of the recommended plan would not impact Prime Farmland.

#### **4.7 NATIONAL HISTORIC PRESERVATION ACT**

Federal agencies are required under Section 106 of the National Historic Preservation Act of 1966, as amended, to “take into account the effects of their undertakings on historic properties” and consider alternatives [(36 CFR 800.1(a-c)] in consultation with the State Historic Preservation Officer (SHPO) and appropriate federally recognized Tribal Nations (36 CFR 800.2(c)). In accordance with this and other applicable regulations, including the National Environmental Policy Act of 1969 (NEPA), the Native American Graves Protection and Repatriation Act (NAGPRA).

#### **4.8 EXECUTIVE ORDER 11990 – PROTECTION OF WETLANDS**

EO 11990 requires federal agencies to minimize wetlands' destruction, loss, or degradation and preserve and enhance wetlands' natural and beneficial values in executing national projects. The recommended plan complies with EO 11990.

#### **4.9 EXECUTIVE ORDER 11988 – FLOODPLAIN MANAGEMENT**

This E.O. directs federal agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and management of the Project comply with EO 11988.

#### **4.10 EXECUTIVE ORDER 12898 – ENVIRONMENTAL JUSTICE**

This E.O. directs Federal agencies to determine whether their programs, policies, and activities would have a disproportionately high or adverse effect on minority or low-income population groups within the Project Area to identify potential E.J. issues. The proposed Project would not impact minority or low-income population groups within the project area.

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## **Appendix A – Public Involvement**

Four public workshops on the project have been held from 2021-2022. Below are the details on the workshop locations, dates, attendees, and summary notes and comments.

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<b>Table of Contents</b>	<b>Page</b>
Searcy .....	2
Rogers .....	2
Branson .....	3
Jacksonport.....	3
Mountain Home.....	4
Website Comments.....	5
Appendix .....	7

## **BEAVER LAKE DAM IRRM WORKSHOP SUMMARY NOTES AND COMMENTS**

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### **Searcy Public Workshop December 16, 2021**

- Has an emergency spillway been considered for Beaver Dam? What are the estimated costs?
- How long with the IRRM last? Could last 6 months, could last 3 years
- Augusta representatives had many concerns. When stages get to 21-24 feet at Newport, they will be 31-34 feet at Augusta and begin overtopping roadways causing flooding issues outside of farms and land. One Augusta resident noted that when the stage is 12' at Newport it is 24' at Augusta. If a rainfall is to occur in the basin while the stage is raised, then the river will continue to rise at Augusta and cause more flooding.
- Noted by one participant that Augusta gage has remained in flood stage for over 50% of the year.
- The downstream impacts are significant to farmers, property owners, homeowners and business owners. If the standard at Newport is 24', that will cause major flooding in Augusta and Georgetown. 2020 saw the river at Augusta with an average stage of 30' which is 4' above flood stage.
- Newport area fields begin flooding problems at 16' – 26'.
- Many suggestions from attendees about releasing more water in the winter months and moving to end the releases earlier. Planting begins in April and need the stage to be lower by then so that farmers can begin planting.
- Questions about why the pool can't be lowered below normal pool. Water supply and hydropower have purchased that storage and water.
- How would pre-releases effect the downstream and storage in other lakes?
- What is the life expectancy of Beaver Dam? What happens if the dam fails? – May be helpful to provide inundation maps on the website.
- Noted that it does take Congress to change the water plan and reallocate water and storage.
- Many comments on Southwest Power Pool water usage and storage. Can this be adjusted?
- Suggestion to dredge White River. What is the cost-benefit short and long term?
- How will the change in stages effect bank stabilization downstream?
- Discussion on the need for a complete basin wide study. There are many competing stakeholders and factors that must be considered.
- What is the congressional support for the White River, dams and a possible basin study?
- Suggest adding a link to the website that includes inundation maps and maps showing the flooding at stages 21' and 24'.
- Can the ASU basin study be useful?
- 2 comment sheets were received at this workshop and can be found in the attached Appendix

### **Rogers Public Workshop January 24, 2022**

- Mike Biggs explained the White River system and explained why Bull Shoals lake does not store more water. Noted that there were 7 more lakes planned but not built.
- There were positive reactions from participants because of high water on Beaver. Many stories of having to canoe out to docks and are happy with the planned lower water levels.
- Fishing concerns. A lowering of 10' would impact fishing but was happy with lowering 2'.

## **BEAVER LAKE DAM IRRM WORKSHOP SUMMARY NOTES AND COMMENTS**

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### **Branson Public Workshop January 25, 2022**

- Concerns of what the new water tables would be for Bull Shoals and Table Rock Lake.
- Concerns that the goal of the plan is to have better control on the lake so not to have anymore “1986” type floods again.
- Will this plan affect the ‘Power Site’ Dam. It’s been discussed that Liberty Power may raise the water level 2’ in order to create more electricity.
- Are there concerns the dam may fail or “break”?
- Gabe provided an overview of the entire White River system and what the IRRM will do.
- Concerns from resident (poultry farmer possibly?) downstream. How will additional Beaver releases impact Table Rock and Bull Shoals? Diamond City has been “shut down” because of water levels. Tourism is dying because of the water levels. Camping along the rivers and lakes have been impacted the most.
- Will water levels increase at Bull Shoals and Table Rock? What is the distribution of risk during the double FIRM?
- Noted about gate openings that the maximum opening of flood gates is 36’. Recent opening has been 2’ and a recent large opening was at 8’.
- Questions about double FIRM. Will water flow through Table Rock and Bull Shoals? What is the distribution of Risk?
- How will this effect fishing and other recreation?
- 1 comment sheet was received at this workshop and can be found in the attached Appendix

### **Jacksonport Public Workshop January 31, 2022**

- A letter was presented by the Farm Bureau of Arkansas stating the importance of minimizing the impacts to farmland along the White River. This letter is included in the attached Appendix.
- A presentation was given by Mike Biggs (overview of system) and Nathaniel Keen (technical review) of the IRRM and necessity of measures.
- Many farmers from the downstream region were present and had concerns with the high stage late into the spring season. Flooding in the spring pushes planting back and potentially pushes this past the final planting dates. Many farmers in the area were on their last year of crop insurance (5 years) and if were not able to plant, would not be able to carry insurance the following season.
- There was concern from participants that the power company’s (SW Power) influence over decision making of the water level. Gabe Knight (USACE) explained that they were currently paying off notes for dam construction and that they did “own” a segment of the storage volume.
- Are SW Power releases (generation) being made the same as they were originally intended to do 40 years ago? Has their generation plan changed?
- If needed, the releases were to begin January 1.
- Much discussion on the changing hydrologic cycle which is currently in a wet cycle. This results in more water in the basin, more runoff and naturally increased water levels downstream. Much of the basin is uncontrolled.
- If a higher stage is maintained downstream, what happens when large precipitation events occur in the uncontrolled portion of the basin? This will quickly push Newport and downstream into flood stage.

## **BEAVER LAKE DAM IRRM WORKSHOP SUMMARY NOTES AND COMMENTS**

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- Safety for the downstream was acknowledged as a legitimate concern, but the public perception was that the IRRM was making the situation worse.
- Col. Noe explained that by taking these measures, there will be more predictability and stability in the White River system. There is an increased flood risk and safety risk by keeping the pool high.
- If the Newport stage is maintained at 14', will this result in more capacity in the system as a whole?
- Some farmers begin losing farmland at 14' (Newport). Farmers whose land has been farmed for over 75 years is not being consistently flooded.
- Is there flexibility in the water stages for regulation?
- Is there flexibility in the Power Pool levels in Beaver Lake?
- Has there been any type of analysis to weigh the benefits of power generation vs the timber and crop industries downstream?
- Continued discussion amongst farmers about the late release schedule. Suggest releasing water earlier in the year/season so that releases can stop before planting season. It takes 10 – 14 days for land to be useable after flooding. Farmers already had business plans set for the year when the IRRMs was authorized. Can the releases be pulled back (stopped earlier) by 30 days?
- Much discussion on the need for a White River basin-wide study.
- Noted that the changes along the river including higher velocities causing bank erosion around Batesville. How will the IRRM effect Batesville area and immediately downstream?
- What bank stabilization measures can be taken?
- Has consideration been given to further lowering water level at Bull Shoals and creating more storage?

### **Mountain Home Public Workshop January 31, 2022**

- Is the increased dam safety risk due to more rain or population density?
- Continued discussion for the need of a basin-wide study.
- Southwest Power acknowledged that they have changed their generating schedule.
- Why does Southwest Power not generate during the winter?
- Is power demand less than in previous years due to milder winters (comparatively)?

## **BEAVER LAKE DAM IRRM WORKSHOP SUMMARY NOTES AND COMMENTS**

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### **Website Comments**

Dennis Haigwood

[haigwoodfamily@yahoo.com](mailto:haigwoodfamily@yahoo.com)

Received February 2, 2022

- Most all farmers will oppose the plan as presented
- Risk is not shared equally among stakeholders
- Timing is too late to allow for production changes- many farmers already have seed,chemicals,and equipment in place that were purchased before the announcement
- Crop insurance premiums will reflect the greater risk and late planting dates
- the later releases would place corn,cotton and rice beyond the insured dates
- Lending agencies will be forced to reevaluate crop loans to reflect more risk
- Data on lives at risk is not clear and data was not verified as to authenticity
- No clear path to resuming normal operations and no contingency plan if this fails to solve the safety issues
- If the dam is at risk- what is the contingency plan to provide water to North West Arkansas?
- If the dam is properly maintained why do we now have increased risk and what method was used to substantiate the added risk if measures are implemented?

Larry Lloyd

[larry.lloyd@att.net](mailto:larry.lloyd@att.net)

Received February 4, 2022

- Was the impact on water quality within Beaver Lake evaluated as part of the IRRM?

David Brown

[clarendonlibrary@centurytel.net](mailto:clarendonlibrary@centurytel.net)

Received January 10, 2022

- Will this affect the amount of water taken from the White River at DeValls Bluff due to the pumping requirements of The Grand Prairie Irrigation Project?

Matt Moudy

[moudydds@gmail.com](mailto:moudydds@gmail.com)

Received December 21, 2021

- My family has a house at Taylor Bay in Augusta on the White River. The new guidelines of potential 24 ft at Newport would affect us in a big way. That would have Augusts at 34 ft and any rain at all to the north and we would be completely flooded out. If the chain of lakes would keep a lower winter pool we wouldn't even be having this conversation because spring rains could be handled better without having to throw so much emergency water down stream. Thanks.

## BEAVER LAKE DAM IRRM WORKSHOP SUMMARY NOTES AND COMMENTS

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June Elliott

[ljune.elliott4@gmail.com](mailto:ljune.elliott4@gmail.com)

Received December 20, 2021

- I live on White River at Augusta. Just during this one rain, the River rose from 15.5 to 25.3. Raising the level at Newport will be devastating to us downstream.

June Elliott

[ljune.elliott4@gmail.com](mailto:ljune.elliott4@gmail.com)

Received December 18, 2021

- First, thank you for scheduling an informational meeting at Searcy. I live at Augusta. Listed below are areas of concern involving raising levels at Newport from 21ft to 24ft.
- 1. Thousands of acres of crop land will be flood. This will cause millions of dollars to be lost. Not only will this impact farmers, but businesses in the areas downstream from Newport.
- 2. Wildlife/ habitats and forests will be destroyed when land is flooded for long periods of time. This causes an imbalance in the environment.
- 3. This is a low social economic area. The population includes many minorities. Jobs are scarce and flooding will cause many to completely disappear.
- 4. Roads will become impassable for months. Some include bus routes which will impact the education of children.
- 5. At the level discussed (24), homes will be flooded. This will displace many families and destroy livelihoods..



## **BEAVER LAKE DAM IRRM WORKSHOP SUMMARY NOTES AND COMMENTS**

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### **APPENDIX**

Farm Bureau Letter

Comment Sheets Received

Public Workshop Sign In Sheets



Colonel Eric Noe  
US Army Corp of Engineers  
Little Rock District

Re: *The Beaver Dam Interim Reduction Measure*

Colonel Noe,

I am writing on behalf of the Arkansas Farm Bureau Federation and the counties impacted by the US Army Corps (Corps) Beaver Dam Interim Reduction Measures. The Arkansas Farm Bureau Federation is a non-profit agricultural advocacy organization with more the 185,000 members. Of these, 50,000 are directly engaged in production agriculture, representing 90% of Arkansas' farmers and ranchers. We submit the following comments in opposition of the Corps Interim Reduction measures. We hope the information provided herein will assist the Corps in making future determinations regarding water level management and releases from the Upper White River reservoir system.

The Flood Control Act of 1936 (Act) was important for agriculture. In addition to loss of life and property damage/destruction, it recognized the severe impacts to our country's top economic sector, agriculture. As such, Congress intentionally identified flood control related responsibilities for both the Corps and the United States Department of Agriculture. We realize that agricultural land plays an important role in flood management. We appreciate the Corp's acknowledgement of this by attempting to minimize flooding at and below Newport during the growing season, however, we believe the plan needs to go further to protect agriculture lands during critical planting periods. We are seeing several multigenerational farms that are now unsustainable in the last five years due to flooding.

Not only is it crucial that flooding be minimized during the growing season, planting season is also equally important. Depending on Spring weather conditions, it may take several weeks for fields to dry enough to support planting activities. Flooding during the growing season becomes more crucial if planting is delayed due to saturated soils. Below are a list of crops and their historical optimal and final planting dates. We hope you will find them useful in your decision-making algorithm regarding water releases and minimizing impacts to agriculture.

<u>Crop</u>	<u>Optimal</u>	<u>Final</u>
Corn	3/11	5/1
Cotton	n/a	5/20
Rice	4/1	5/25
Soybeans	4/16	6/15

*Prize*  
*Aug if planted early*  
*Mid to late Sep*

The dates listed above are crop insurance planning dates established by the Risk Management Agency, a department of the United State Department of Agriculture. The optimal date

*Dawson - June 1 -*  
Arkansas Farm Bureau • P.O. Box 31 • Little Rock, AR 72203-0031 • 501-224-4400

represents the best time to plant, typically resulting in the highest yields. The final date represents the last day crop specific planting can occur without significant loss of revenue.

In conclusion, The Arkansas Farm Bureau Federation believes the plan must be updated to recognize the need to protect agricultural lands during the planting periods listed above, therefore, Farm Bureau cannot support the plan as proposed. We hope the information provided herein assist the Corps in making more informed decisions related to water releases on the Upper White River System.

Please do not hesitate to contact me if I can be of further assistance.

Sincerely,

John Bailey, P.E.  
Director, Commodity Regulatory Affairs  
Arkansas Farm Bureau Federation

## BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

December 16, 2021

The Workshop Team is interested in your thoughts about the Interim Risk Reduction Measures for Beaver Lake Dam. We are seeking your input as to any concerns you have regarding the measures. Comments can also be provided at <https://beaverlakedam-irm.com> in the COMMENTS box.

### Comments:

flooding Augusta!  
12' at Newport = 24' at Augusta  
& any kind of excessive rainfall puts  
Augusta at the 26' flood level & higher.

ASU Basin Study might prove  
helpful.

Sueck if you can.



## BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

### Public Workshop

December 16, 2021

The Workshop Team is interested in your thoughts about the Interim Risk Reduction Measures for Beaver Lake Dam. We are seeking your input as to any concerns you have regarding the measures. Comments can also be provided at <https://beaverlakedam-irrm.com> in the COMMENTS box.

#### Comments:

Impact Study is needed -

Downstream will be impacted dramatically, to both farmers, property owners, homeowners and businesses.

If the standard at Newport is 24ft, that will cause major flooding at Augusta and Georgetown - Last year (2020) the river at August averaged 30 ft - which is 4ft above flood stage.



## BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

### Public Workshop

January 25, 2022

The Workshop Team is interested in your thoughts about the Interim Risk Reduction Measures for Beaver Lake Dam. We are seeking your input as to any concerns you have regarding the measures. Comments can also be provided at <https://beaverlakedam-irrm.com> in the COMMENTS box.

#### Comments:

Jerry from Hollister - Utility wants to raise  
Powersitedam  
Taneycond 2' which will impact the camp sites.  
Volunteer (finance committee) w/ city of Branson  
Powersite dam (Liberty Utility)

Jerry Brinkley



# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

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Public Workshop  
December 16, 2021

Name	Agency	Phone	Email
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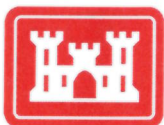
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Blake Fuller		870834 9116	
Rob Fuller		870 613 6453	



# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop  
December 16, 2021

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James R. Conell Jr. (backwater hunting club)		501-681-4479	JimboRkat@gmail. com





**BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)**

Public Workshop  
December 16, 2021

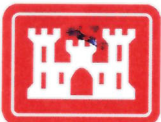
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**BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)**

Public Workshop  
December 16, 2021

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# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

January 24, 2022

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# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

January 24, 2022

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**BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)**

**Public Workshop  
January 24, 2022**

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# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

January 25, 2022

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5:15

## BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

January 31, 2022

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## BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

January 31, 2022

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# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

January 31, 2022

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## BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

February 1, 2022

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# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

February 1, 2022

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# BEAVER LAKE DAM - INTERIM RISK REDUCTION MEASURES (IRRM)

Public Workshop

February 1, 2022

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MARK RICKETT	HALFF		mrickett@sbcsglobal.net
Jared Milford	SWPA	918-861-7126	jared.milford@swpa.gov
Jason Gramlich	<del>USACE</del> USACE		



# ADDITIONAL BEAVER LAKE DAM IRRMs (NON-OPERATIONAL)

1. Physical Improvements to Dam Equipment
  - Gate mechanical / electrical waterproofing
  - Equipment wave run-up protection
  - Added sensors for remote operation
2. Preparedness Improvements
  - Emergency flood barriers for control house and power house
  - Increased monitoring for potential seepage
  - Downstream warning system for Carroll County, Arkansas and Branson, Missouri
3. Communication
  - Regular emergency exercises with stakeholders

## Public Workshop Dates

- Dec. 16 - Searcy, AR - 5p.m. - 8p.m.
- Jan. 24 - Rogers, AR - 5p.m. - 8p.m.
- Jan. 25 - Branson, MO - 5p.m. - 8p.m.
- Jan. 31 - Jacksonport, AR - 5p.m. - 8p.m.
- Feb. 1 - Mountain Home, AR - 5p.m. - 8p.m.

## Contact

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700 West Capitol Avenue  
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501-324-5551  
beaverlakedam-irm.com

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## BACKGROUND

Beaver Lake is operated as part of a system of lakes on the White River to reduce peak flows in the river downstream. Three operational changes are being made to reduce how often Beaver Lake is high in the flood pool. Lowering the frequency of sustained high pools will reduce the population at risk of flooding. Two changes modify the direct operation of Beaver Lake and a third allows for faster evacuation of flood storage from the four upper White River lakes: Beaver, Table Rock, Bull Shoals, and Norfolk.

## USACE DAM SAFETY PROGRAM

Reducing risk to life is top priority and the core of the program. Our Dam Safety Program exists to assess a dam's condition, communicate what we know and help manage any risks associated with the dam.

## DAM SAFETY RISKS

We cannot completely eliminate risk, but we can reduce and manage risk. Risk is the likelihood an event such as an excessive rainfall will occur, how the dam performs, and the consequences of failure, with loss of life the paramount concern.



## U.S. Army Corps of Engineers

BEAVER LAKE DAM IRRMP  
2022

beaverlakedam-irm.com



# INTERIM RISK REDUCTION MEASURES (IRRM<sub>s</sub>)

An IRRM is a series of temporary actions implemented by engineers designed to reduce the risk to downstream populations that may be associated with high water elevations at a USACE reservoir. Since 2017, a series of IRRMs have been implemented at Beaver Lake Dam. These IRRMs ranged from updated emergency action plans to water-proofing the operational equipment at the dam (gate controls) to faster, more effective evacuation of the water from the flood pool. Updating these flood pool evacuation operations was performed in a series of three steps, which are described below.

## 1. DOUBLE FLOOD RISK MANAGEMENT MINIMUM RELEASE AFTER FLOODS.

- Minimum releases from Beaver Lake increased from 950 cfs to 1900 cfs when Beaver Lake is in flood pool and conditions downstream allow
- Table Rock must be below elevation 917 feet
- Combined Beaver, Table Rock, and Bull Shoals 50 percent flood storage

## 2. DEEPER DRAWDOWN AFTER SURCHARGE (RELEASE TO PREVENT GATES FROM OVERTOPPING)

- Drawdown of 1.5 feet from top of flood pool (from elevation 1,130.0 to 1,128.5 feet) after flood event
- Provides extra 0.5-inch runoff storage

## 3. REVISED GUIDE CURVES AT NEWPORT AND GEORGETOWN.

Winter:

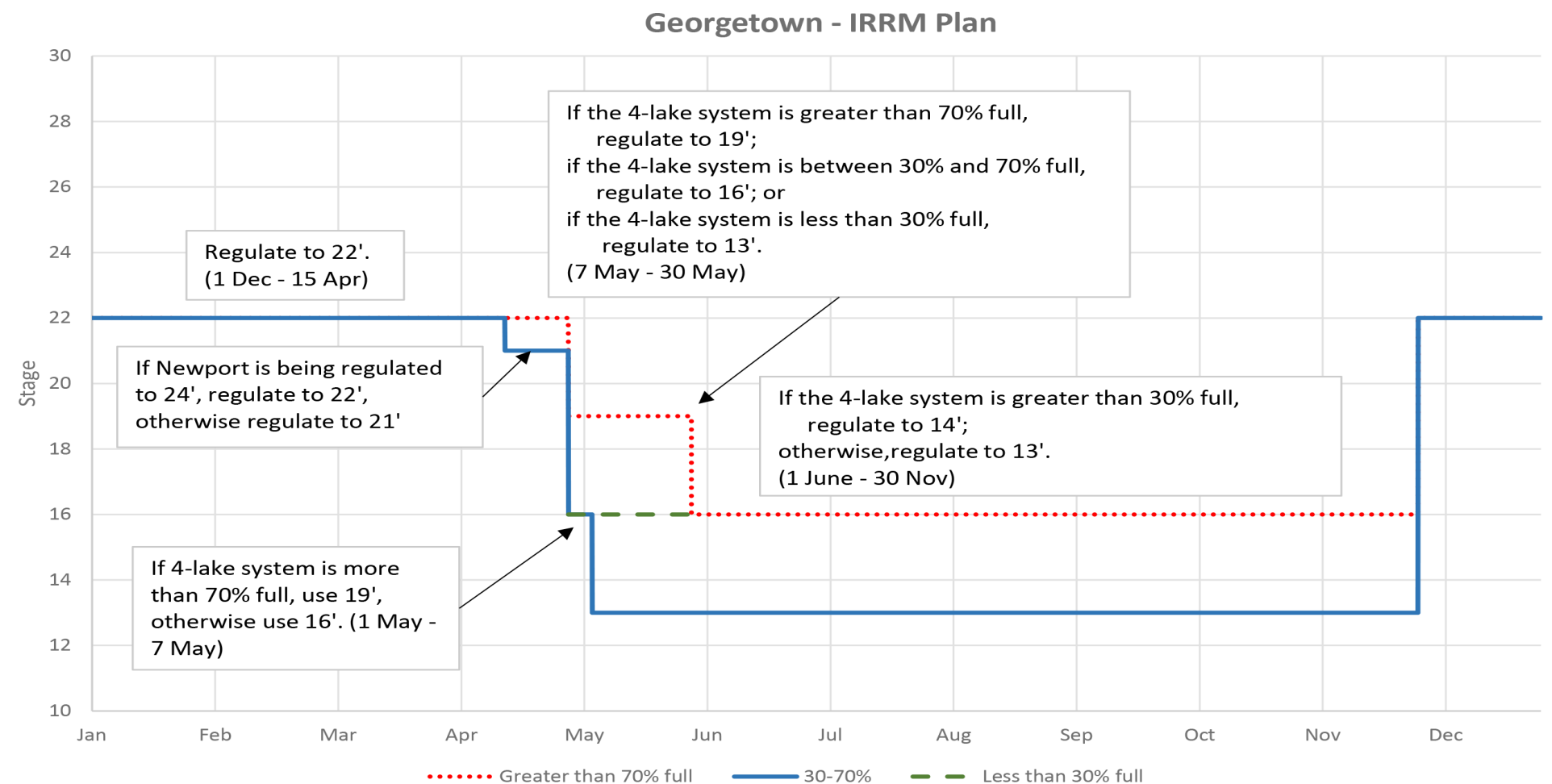
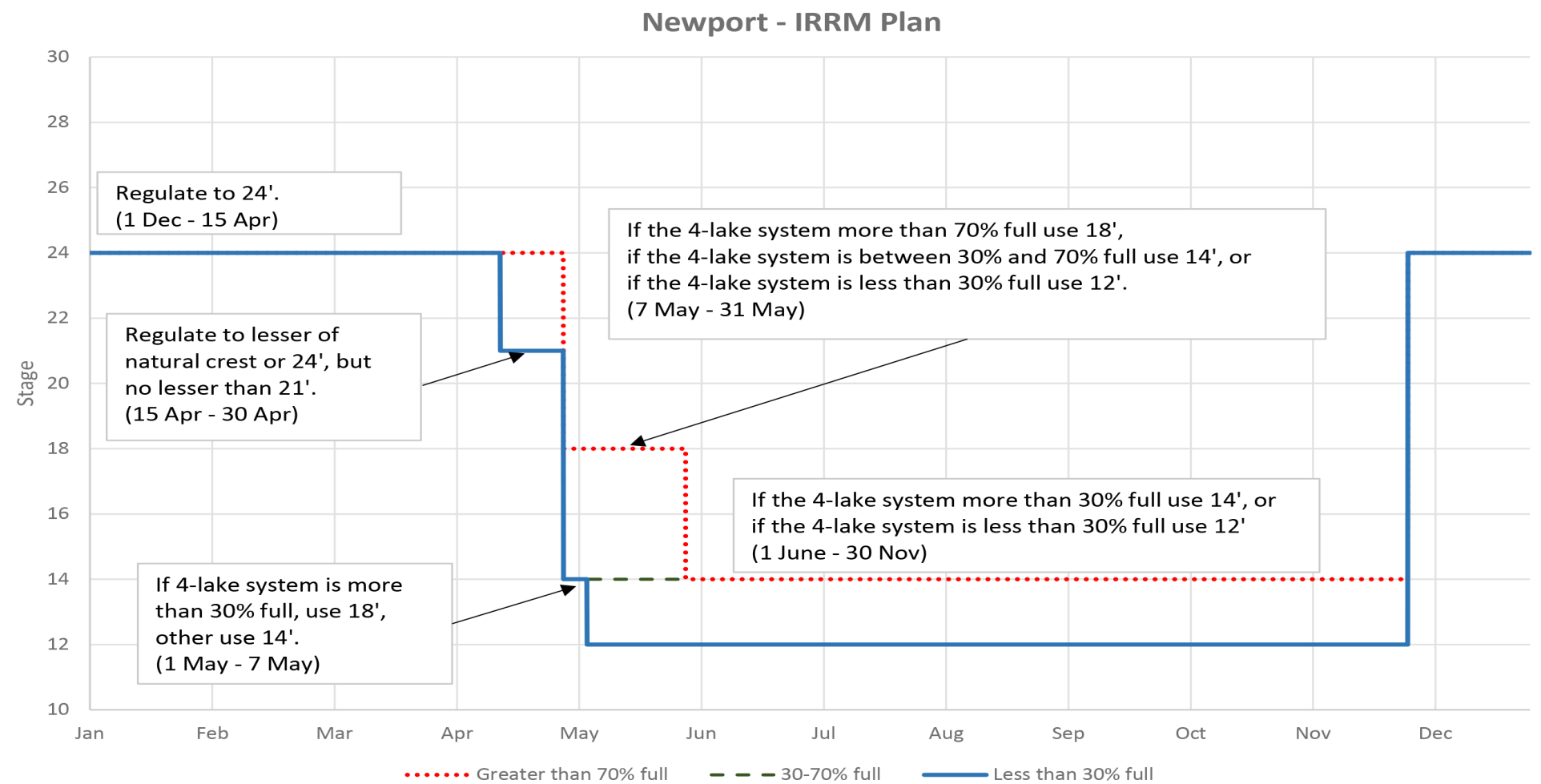
- Regulate to 24 feet
- Delay shift to springtime targets by two weeks

Springtime:

- When system storage is LOW, use current low target (blue)
- When system storage is HIGH, use current high target (green dash), and
- When system storage is VERY HIGH, use current late springtime (May) target (red dots)

Summer/Fall:

- When system storage is above 30 percent, regulate to higher summer target



**Appendix B – Draft FONSI**

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**FINDING OF NO SIGNIFICANT IMPACT**  
**ENVIRONMENTAL ASSESSMENT FOR THE**  
**OPERATIONAL INTERIM RISK REDUCTION MEASURE AT BEAVER LAKE DAM**  
**BENTON AND CARROLL COUNTIES, ARKANSAS**

In accordance with the National Environmental Policy Act of 1969, as amended, and implementing regulations in 40 Code of Federal Regulations (CFR) Parts 1500 – 1508, including guidelines in 33 CFR Part 230, the Little Rock District and the Regional Planning and Environmental Center (RPEC) of the U.S. Army Corps of Engineers (USACE) have assessed the potential environmental impacts of the implantation of the operational interim risk reduction measure at Beaver Lake Dam.

The implementation of the risk reduction measure (IRRM Plan) is necessary to protect dam infrastructure and reflects current and future ecological, socio-demographic, and outdoor recreation trends affecting the White River System.

Beaver Dam was evaluated by a risk assessment team as part of an August 2016 Periodic Assessment (PA). During the PA, access to and control of the Tainter gates was identified to be restricted above elevation 1,132.5 feet by flood waters. This elevation is when the water control manual states that the gates must be fully opened. At elevation 1,132.5 feet the catwalk becomes submerged and at elevation 1,133.5 feet the Tainter gate operating machinery decks are submerged making it impossible to make any gate changes. If the gates cannot be fully controlled there is a risk of overtopping of the dam, main embankment, and dikes.

The Environmental Assessment (EA) for the IRRM Plan evaluated three alternatives. In addition to a "No Action" Alternative, alternatives (including the Recommended Plan) were considered which fully meet the Project's purposes and current USACE policies.

Section 2.0 of the EA discusses the alternative formulation and selection, and Section 3.0 discusses existing conditions and environmental consequences associated with the alternatives. A summary of the potential effects of the Proposed Action is included in Table 1.

The recommended Plan includes updates to comply with the USACE regulations and guidance. The recommended Plan meets management objectives compatible with regional goals, recognized outdoor recreation trends and is responsive to public comments.



**Table 1: Summary of Potential Effects of the Recommended Plan**

<b>Resource</b>	<b>Insignificant effects</b>	<b>Insignificant effects as a result of mitigation*</b>	<b>Resource unaffected by the action</b>
Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aquatic resources/wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invasive species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fish and wildlife habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened/Endangered species/critical habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Historic properties	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other cultural resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Floodplains	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hazardous, toxic & radioactive waste	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hydrology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Socioeconomics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Climate change	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

All practicable and appropriate means to avoid or minimize adverse environmental effects have been analyzed and incorporated into the recommended Plan. The recommended Plan will not entail any ground-disturbing activities. Future ground-disturbing activities on USACE property will be subject to all necessary environmental evaluations and compliance regulations.

No compensatory mitigation is required as part of the recommended Plan.

[\[Insert date of Public Review of Draft and summary of response to comments.\]](#)

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the USACE determined that the recommended Plan will have no effect on any federally listed species or their designated critical habitat.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the USACE determined that the recommended plan will have no effect on the Cultural resources that are located within the area. the Arkansas State Historic Preservation Officer has concurred with this determination.

All applicable environmental laws were considered and coordination with appropriate agencies and officials have been completed.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluating alternatives. Based on this report, the reviews by other Federal, State, and local agencies, Tribal Nations, input of the public, and the review by my staff, it is my determination that the recommended Plan will not cause significant adverse impacts on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

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Date

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Damon M Knarr  
Colonel, U.S. Army  
District Commander

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**Appendix C – Memorandum for Record dated 28 July 2021**

DRAFT



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, LITTLE ROCK DISTRICT  
700 WEST CAPITOL AVENUE  
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-DE

28 July 2021

MEMORANDUM FOR RECORD

SUBJECT: Implementation of an Operational Interim Risk Reduction Measure (IRRM) at Beaver Dam, White River, Arkansas

1. PURPOSE: The purpose of this memorandum is to document the path forward to having an action that is fully compliant with all environmental laws and regulations.
2. SUMMARY: Beaver Dam is located in the Northwest corner of Arkansas on the White River at mile 609, in Benton, Washington, Carroll, and Madison counties. The watershed basin for Beaver Lake covers 1,186 miles (759,040 acres) and there are 449 miles of shoreline at the top of the conservation pool (1,120.43 feet mean sea level). Beaver Lake is one of six multi-purpose projects constructed in the White River Basin for the control of floods, generation of hydroelectric power, public water supply, and recreation. Beaver Lake was included in the comprehensive plan for flood control and other purposes in the White River Basin by the Flood Control Act of 1954 and authorized for water supply in the Water Supply Act of 1958. Construction of the dam began in 1960 and was completed in 1966.

Beaver Dam was evaluated by a risk assessment team as part of an August 2016 Periodic Assessment (PA). Based on the results of this risk assessment, the incremental risks are higher than previously understood. In addition, a residual risk has been identified with high life loss estimates, which contributed to Beaver Dam being classified as a Dam Safety Action Classification (DSAC) 3 (Moderate Urgency).

During the PA, access to and control of the Tainter gates was identified to be restricted above elevation 1,132.5 feet by flood waters. This elevation is when the water control manual states that the gates must be fully opened. At elevation 1,132.5 feet the catwalk becomes submerged and at elevation 1,133.5 feet the Tainter gate operating machinery decks are submerged making it impossible to make any gate changes. If the gates cannot be fully controlled there is a risk of overtopping of the dam, main embankment, and dikes. The decision to open the gates must be made before access to the controls is restricted. The window of time between identifying that the pool is likely to exceed the critical elevation and the pool actually doing so will likely be short, making getting the gates fully open challenging and giving little or no warning time to people downstream of the dam. Additionally, the sudden change to a full gate opening will result in more than a doubling of the release; with an increase in discharge of more than 150,000 cubic feet per second. This rapid change in conditions poses a significant increase in risk to the downstream population.

CESWL-DE

SUBJECT: Implementation of an Operational Interim Risk Reduction Measure (IRRM) at Beaver Dam, White River, Arkansas

To address the risk, an interim risk reduction measure (IRRM) that would modify the water control procedures and allow for opening of the gates sooner has been proposed. The IRRM is described in more detail in the Interim Risk Reduction Measures Plan, Beaver Dam, White River, Arkansas---2021 Major Update dated 02 April 2021 and approved on 27 April 2021. In summary, implementation of the IRRM would operate the White River System of lakes to a hybrid of the pre-1998/post-1998 seasonal guide curves at Newport and Georgetown, Arkansas and sustain previous changes to Beaver's operations by IRRM. By implementing this hybrid plan, all five of the White River System of reservoirs would evacuate rainfall runoff more efficiently. Using the pre-1998 seasonal guide curves combined with the post-1998 timing for stage transition, more aggressive FRM releases can be made during months most likely to receive runoff producing rainfall. By targeting higher seasonal regulating stages in wet years, USACE regains flood risk management (FRM) storage in a faster manner. This operational modification lowers both the frequency and duration of high pool events at Beaver Lake. The annual chance of a scenario near the 1132.5 feet range becomes 4 to 5 times less likely. The shorter duration of time near the top of FRM pool (sometimes called a perched pool) at Beaver Lake has the added benefit of providing more storage for late season storms.

Implementation of the IRRM has proven through careful analysis to be an effective tool to address the urgent need to reduce life loss risk at Beaver Lake without increasing life loss risks at other White River Lakes. Beaver Lake currently has more than 50% Flood Risk Management storage in use and is releasing the maximum permissible under the current plan. As late summer rainfall continues it is anticipated to be utilizing flood storage for the next few months. Couple that with the beginning of hurricane season and the potential for a tropical storm or storm remnant to track over the lake with already high flood pools, there is an increased risk of surcharge stages, loss of control of the Tainter gates, and the potential for a breach. With this change, the FRM storage can be more efficiently evacuated, reducing the risk to the upper and lower river valleys. The estimated population at risk will be reduced on the order of 1000 people per day by implementing this operational interim risk reduction measure.

Potential impacts from implementing the operational IRRM are anticipated to be low and should be very similar to those observed over the last 50 years, which have been less than significant. The operational IRRM was developed based on experience during pre-1998 and current operational curves and optimizes both to reduce the extreme danger to the human and natural environment during drought and flood conditions. With this action, smaller releases can be made sooner which reduces the potential for more significant impacts from larger surcharge releases. Additionally, the action evacuates the perched pool faster which avoids impacts to sensitive karst and bottomland habitats as well as recreational facilities and properties upstream of the dam.

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SUBJECT: Implementation of an Operational Interim Risk Reduction Measure (IRRM) at Beaver Dam, White River, Arkansas

3. NEPA COMPLIANCE: This action requires compliance with the National Environmental Policy Act (NEPA) and the Implementing Regulations (40 CFR parts 1500-1508) issued by CEQ (CEQ NEPA Regulations). However, completion of NEPA will take several months during which time the IRRM may need to be implemented prior to NEPA being completed in order to reduce the threat to life safety, property, and valuable natural resources. While the IRRM classifies this as an “urgent” need, the inability to complete a NEPA analysis before taking action to protect life safety, property and valuable natural resources qualifies this as an emergency action under CEQ NEPA Regulations (40 CFR 1506.11) and is subject to the Emergencies and the National Environmental Policy Act Guidance issued by CEQ on 14 September 2020 (85 FR 60137).

The proposed activity is not statutorily exempt from NEPA, no Categorical Exclusions (CE) are available for use, no existing NEPA analysis (EA or EIS) covers the proposed response action, and no significant effects are anticipated from implementing the action after review of anticipated conditions; therefore, an Environmental Assessment (EA) is appropriate. To comply with CEQ NEPA Regulations, preparation of a focused, concise EA will be prepared in accordance with Attachment 2 of the CEQ Guidance. Alternative arrangements, as outlined at 40 CFR 1506.12, do not apply because the environmental impacts are not expected to be significant.

Additionally, public notification to the affected public and relevant Federal, State, Tribal and local agency representatives is required to inform them of the impending actions. Despite the emergency nature of this action, CEQ NEPA regulatory requirements for content, interagency coordination, and public involvement are required to the extent practicable.

4. DECISION: It is my decision to begin preparing an EA that addresses the IRRM under the CEQ NEPA Regulations with the goal of having a fully compliant decision document prior to needing to implement the operational deviation. However, in the event that future meteorological conditions and the threat to life safety, property and natural resources induce a more immediate need for implementation, the action will be covered as an Emergency Action under NEPA that allows for compliance with NEPA after the fact.

CESWL-DE

SUBJECT: Implementation of an Operational Interim Risk Reduction Measure (IRRM)  
at Beaver Dam, White River, Arkansas

5. The POC for this memorandum is the Regional Planning and Environmental Center (RPEC) Environmental Lead, Ms. Melinda Fisher, at (918) 669-7423.

ERIC M. NOE, PMP  
Colonel, EN  
Commanding