

Finding of No Significant Impact For ARS Field Station Lake Dam Rehabilitation Woodward, Oklahoma

Introduction

The U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) has prepared an Agricultural Research Station (ARS) Field Station Lake Dam Rehabilitation Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended. The Environmental Assessment (EA) documents the results of the potential environmental impacts associated with the Proposed Action.

The Council on Environmental Quality (CEQ) regulations specifically direct that “Agencies shall integrate the NEPA process with other planning at the earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts” (40 Code of Federal Regulations [CFR] 1501.2).

An EA serves three primary purposes: 1) to help determine whether the impact of a proposed action or alternative could be significant; 2) to aid in NEPA compliance when no EIS is required, by evaluating a proposal that will have no significant impact but may have measurable adverse impacts; and 3) to facilitate preparation of an EIS, if one is determined to be necessary.

Purpose and Need

The Field Station Lake Dam was originally constructed as a low-hazard Class (a) dam. An investigative study was completed for the ARS in 2016, which concluded that the dam and spillway structures were in fair to poor condition. The dam had been reclassified as a high-hazard dam by NRCS, which means that dam failure may cause loss of life and serious damage to homes, industrial or commercial buildings, important public utilities, main highways, or railroads. The hazard classification was based on four potential damage locations (PDLs), two roads and two structures located downstream of the dam. The investigative study identified two additional PDLs and recommended that the dam remain classified as a high-hazard dam and provided potential alternatives for dam and spillway rehabilitation.

The ARS Field Station Lake Dam does not currently meet NRCS TR-60 standards for a high-hazard dam. Therefore, rehabilitation is necessary to bring the dam and spillway up to current safety standards to minimize the risk for loss of life due to a dam breach.

The ARS Field Station Lake Dam Rehabilitation Project is formulated to allow for the lake to remain the primary source of irrigation for the Southern Plains Range Research Station (SPRRS, a.k.a. the Field Station), while reducing the risk to life and property downstream. The consensus of federal, state, and local planners involved in the planning process is that installation of the planned measures will satisfy this objective.

Recommended Plan

Four alternatives were evaluated including: No Action; a New Labyrinth Spillway through the Embankment; a New Labyrinth Spillway on the Embankment with an RCC Chute; and a RCC Auxiliary Spillway and Reinforced Principal Spillway. When compared to the action alternatives, the No-Action

alternative does not meet the NRCS criteria for high hazard dams. The RCC Auxiliary Spillway alternative is the Recommended Plan as it provides the most cost effective means to meet the ARS' objectives of bringing the Field Station Lake Dam and related structures into compliance with NRCS standards for high hazard dams, resolving existing structural issues, providing capacity in the auxiliary spillway to safely pass the probable maximum flood (PMF) rainfall event, and allowing for lowering of lake levels in the event of a dam safety emergency.

The Recommended Plan consists of construction of a roller compacted concrete (RCC) auxiliary spillway over the dam embankment in conjunction with a reinforced concrete principal spillway conduit. This alternative would upgrade both spillways to meet NRCS high-hazard dam criteria and Oklahoma Water Resources Board (OWRB) safety criteria.

The proposed principal spillway consists of a standard 30-inch x 90-inch x 20-foot reinforced concrete baffle top, drop inlet with a 30-inch inner diameter (ID) reinforced concrete pipe conduit. The principal spillway inlet conforms to current seismic requirements. The principal spillway crest would be at an elevation of 1973.3, which is the same as the existing conditions. The proposed design will accommodate an additional 71 acre-feet of aerated sediment in addition to the 236 acre-feet of submerged sediment. Since this is not a floodwater retarding structure, a sedimentation rate was not calculated in the plan. However, a sedimentation rate was calculated using nearby watershed sites. A RCC stilling basin outlet is proposed for energy dissipation at the conduit outlet. Front slope wave action damage protection would be provided by riprap. Table 1 below provides a comparison of existing and planned conditions for the dam.

Table 1. Comparison of Structural Data for Existing and Planned Conditions

Field Station Lake Dam	Unit	As Built	Planned
Surface Area	Acres	31	31
Elevation, Top of Dam	MSL	1973.3	1973.3
Elevation, Principal Spillway	MSL	1973.3	1973.3
Elevation, Auxiliary Spillway	MSL	1973.6	1977.5
Length of Dam	Feet	950	950
Length of Auxiliary Spillway	Feet	475	415
Principal Spillway	Type	Concrete	Reinforced Concrete
Auxiliary Spillway	Type	Concrete	Roller Compacted Concrete
Sediment Storage	Acre-Feet	236	307

Effect of the Recommended Plan

The Council on Environmental Quality (CEQ) regulations define 'significant effects or impacts' as requiring consideration of both context and intensity (40 CFR 1508.27). Context is the analysis of the significance of an action in relation (context) to society, locality, and affected region and interests. Both

short- and long-term effects are relevant. Intensity refers to the severity of the impact and is evaluated using the 10 criteria listed in 40 CFR 1508.27.

Table 2 summarizes impacts under the Recommended Plan. Implementation of the planned measures is the most practical means of addressing public health and safety issues in the event of a dam breach.

Table 2. Summary of the Effects of the Recommended Plan

Effects	RCC Auxiliary Spillway & Reinforced Principal Spillway
Structural	Dam would meet NRCS high-hazard and OWRB safety criteria
Project Investment (Construction Cost)	\$7,137,745
Environmental Quality	
Geology, Soils, & Prime Farmland	No effect
Floodplains & Wetlands	Permanent adverse effects on 2.7 ac herbaceous, 0.25 ac forested, 0.13 ac shrub-scrub wetlands, and 180 In ft of stream, requiring permitting under CWA Section 404(b)1
Vegetation	Short-term negative effect
Fish & Wildlife Habitats	Short-term negative effect
T&E Species	No effect
Cultural & Historic Properties	There are long-term effects on the existing resources that could require mitigation under the NHPA
Water Quality & Supply	Water quality protected due to sediment trapping; irrigation restored
HTRW	No effect
Air Quality & Noise	Short-term negative effect
Other Social Effects	
Recreation	Short-term negative effect
Socioeconomic Conditions, Environmental Justice, & Civil Rights	No effect
Utilities & Energy	Permanent relocation of electrical power and water lines
Transportation	Protect downstream roads and structures from flooding
Relocation & Condemnation	No effect

Construction of the Field Station Lake Dam has had long-term direct effects on the environment through site excavation, development of a permanent impoundment (the lake) that now provides irrigation for the Field Station; flood control, incidental recreational opportunities, fish and wildlife habitat, and other incidental benefits.

The dam has indirectly affected the natural environment by permanently flooding areas, temporarily inundating the floodplain upstream of the dam during storm events, and by trapping sediment that would otherwise move downstream during storm events. The dam has reduced downstream peak flows during storm events, and consequently protects property and people in otherwise flood-prone areas.

Rehabilitation of the dam under the alternatives considered would not change the hydrology downstream except for protecting the downstream area from catastrophic flooding that could occur if the dam were to fail. Rehabilitation of the dam under the Recommended Plan would allow downstream areas within the floodplain to support current uses

Mitigation

Mitigation for WOTUS is only required for projects authorized by NWP 3 if a PCN is required and 0.1 acre of WOTUS are permanently impacted by the project. It is anticipated that the project would be constructed under the authorization of a NWP 3 without the requirement of a PCN. Therefore, no wetland or stream mitigation would be required for the recommended plan. Under General Condition 20 of the NWP 3, if existing or new cultural resources are identified within the project's area of potential affect, a PCN will be required for the project and would in turn, mitigation would be required for impacts to WOTUS over 0.1 acre. Consultation with the USACE will be necessary to determine the presence of jurisdictional WOTUS, Section 404(b)1 permit requirements, and any potential mitigation requirements.

Because no likely habitat for threatened or endangered species occurs within the proposed project area, no mitigation would be required. Concerns regarding potential loss of fish including sportfish species have been discussed with ODWC staff. Some level of options under consideration, including the capture and relocation to other water bodies, will be pursued with ODWC, making sure that strict protocols are adhered to in order to mitigate against any potential adverse effects; or allowing citizens to keep fish caught rather than releasing as current policy dictates. ODWC has expressed a willingness to assist with improving fish habitat during construction and will restock the lake once the rehabilitation work is completed. Additionally, the idea of creating a wetland bench around the lake perimeter was discussed during the public scoping meetings as another option for creating additional habitat and reducing bank erosion due to wave action along the lakeshore.

If the dam is eligible for NRHP listing, is a contributing resource to the NRHP-eligible United States Field Station Historic District, and it is determined that there is an adverse effect, then, under Section 106 of the NHPA, mitigation and a Memorandum of Agreement (MOA) between the OKSHPO and ARS would be required. The MOA would be the vehicle to complete Section 106 and memorialize the mitigation and responsibilities of the OKSHPO and the ARS.

Mitigation, if required for impacts to WOTUS or Cultural Resources, would be sufficient to reduce these effects to non-significant levels.

Consultation and Public Involvement

Agencies and the general public were involved early in the scoping process and during evaluation of the draft EA document.

Agency Consultation

Two stakeholder meetings were held on September 26, 2019 to explain the ARS Field Station Lake Dam Rehabilitation Project and to scope resource problems, issues, and concerns of federal, state, and local agencies and municipalities. Representatives from the City of Woodward, Woodward County, OWRB, Northwestern Oklahoma State University, Rural Development "A" Team, and local financial institutions were in attendance. No additional comments were received for the Scoping portion of this project. NRCS is consulting with the USACE, OKSHPO and the appropriate Tribal Historic Preservation Offices (THPOs). Numerous local, state, and federal agencies will be provided electronic copies of the EA and FONSI for their review and comment.

Public Participation

A public open house was held on September 26, 2019 to explain the project and to scope resource problems, issues, and concerns of local residents. Potential alternative solutions to bring the dam into compliance with current NRCS and OWRB dam safety criteria were presented. No comments were received during the 30-day public scoping comment period.

The 30 day public comment period for the Final EA and FONSI will be December 27, 2019 through January 27, 2020. Notice of document availability will also be published in the Woodward News.

Conclusion

Based on the EA summarized above, the Recommended Plan for the ARS Field Station Lake Dam Rehabilitation will not have a significant impact, either by itself or in consideration of cumulative impacts. Accordingly, the requirements of NEPA; regulations promulgated by the CEQ; and provisions of the ARS Facility Design Standards Manual 242.1 and the NRCS National Watershed Program Manual have been fulfilled.

It is my determination that the proposed action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with NEPA and regulations of the CEQ, an environmental impact statement for implementation of the Recommended Plan is not required.

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Date