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RECLAMATION

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B.F. Sisk Dam Safety of Dams Modification Report

**Central Valley Project, San Luis Unit, West San Joaquin Division
California–Great Basin, Region 10**



Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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**Central Valley Project, San Luis Unit, West San Joaquin Division
California–Great Basin Region, Interior Region 10**

prepared by

Dam Safety and Infrastructure

Cover Photo: B.F. Sisk Dam and San Luis Reservoir. (Reclamation)

Summary

This report presents the findings of studies the Bureau of Reclamation (Reclamation) conducted at B.F. Sisk Dam from 2003 to 2019. Structural corrective action to reduce the potential for dam failure and the associated risks to public safety is needed. The report explains Reclamation's methodology and evaluates the technical, economic, environmental, and other pertinent information that led to the recommended corrective action (the preferred alternative).

B.F. Sisk Dam (formerly San Luis Dam) is a large embankment dam that impounds San Luis Reservoir, an offstream storage facility located on San Luis Creek and Cottonwood Creek approximately 12 miles west of Los Banos, California. The dam was built from 1963 through 1967 and is a principal feature of the Federal Central Valley Project (CVP). It is also a joint-use facility with the State of California, operated as part of the California State Water Project (SWP). Storage capacity and use of the joint-use facility are shared between Reclamation and State of California Department of Water Resources (DWR).

In 2003, a Comprehensive Facility Review of B.F. Sisk Dam identified seismic risks that exceeded Reclamation's Public Protection Guidelines. Over the next sixteen years, Reclamation and DWR conducted field investigations and analyses to better understand the risks and determine what, if any, action should be taken to reduce the risks. The fundamental conclusion of all safety of dams investigations taken together is that modification is justified and necessary to address the risks posed by potential failure of the dam because of seismic shaking. Modification of the dam will bolster the structural integrity of the dam and protect the population and property downstream.

Reclamation's preferred alternative includes the addition of shear keys and downstream stability berms and raises the dam crest by 12 feet to provide seismic stability for the embankment during a large earthquake. Reclamation selected the preferred alternative after consulting with independent experts and considering cost, constructability, efficiency, and risk reduction. This alternative reduces risk significantly below Public Protection Guidelines and provides the most confidence of any alternative in the estimate of risk reduction. This alternative also provides confidence in the final product and the lowest future maintenance costs by using state-of-the-practice design and construction techniques employed throughout the dam safety industry. In addition, the preferred alternative preserves all the benefits that B.F. Sisk Dam and San Luis Reservoir currently provide, such as water for irrigation and municipal use. No benefits will be lost during or as a result of construction of the preferred alternative.

An Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was completed to determine potential environmental impacts of the preferred alternative, and mitigation measures associated with those impacts will be incorporated into the project. Major findings from the EIS/EIR were included in the Record of Decision (ROD), which meets the requirements of the National Environmental Policy Act. The ROD for the project was signed in December 2019.

The estimated capital cost of the preferred alternative is \$1.1 billion, which includes the costs for facility studies and reviews, environmental and cultural evaluations and mitigation, design, contract procurement, construction and construction oversight, and preparation of this modification report. Repayment of reimbursable cost will be in accordance with Reclamation law.

Since the inception of the project, Reclamation has undertaken a public involvement program to inform the public and receive comments about dam safety issues and proposed solutions at B.F. Sisk Dam. Reclamation's project partners and the project beneficiaries have participated and offered input since the

Corrective Action Study began in 2006. The modifications recommended in this report will ensure that B.F. Sisk Dam and San Luis Reservoir can continue to serve the public safely and productively.

To ensure public safety and maintain the current level of project benefits, Reclamation concludes the following:

- The identified risks at B.F. Sisk Dam must be reduced in a cost effective, technically viable manner that mitigates environmental impacts and maintains project benefits.
- B.F. Sisk Dam may be modified, as proposed herein, under the authority of the Safety of Dams Act.
- Construction of the preferred alternative should proceed as soon as practical to address the seismic risks at B.F. Sisk Dam, which present high risks to the downstream public.