United States Department of the Interior
Bureau of Reclamation
Lower Colorado Region
Phoenix Area Office

FINDING OF NO SIGNIFICANT IMPACT

Charley Day Spring Dam
Expedited Dam Safety Action
Spillway and Dam Breach Design

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FONSI No. PXAO-09-5

INTRODUCTION

In accordance with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, as amended), the Bureau of Reclamation and the Bureau of Indian Affairs (BIA), as joint lead Federal agencies, have issued the Final Environmental Assessment (EA) for Charley Spring Dam Expedited Dam Safety Action Spillway and Dam Breach Design (Reclamation 2009). The EA discloses the potential environmental impacts associated with implementing proposed corrective measures to address the Safety of Dams (SOD) structural deficiencies identified in the Charley Day Spring Dam Comprehensive Dam Review. Charley Day Spring Dam is located in the Navajo Nation community of Tuba City, Coconino County, Arizona.

BACKGROUND

The purpose for modifying Charley Day Spring Dam is to eliminate public health and safety hazards associated with structural deficiencies associated with the dam. Based on BIA criteria, the Charley Day Spring Dam has an unacceptably high probability of both overtopping failure and seepage-related failure in a flood event. In its current configuration, the Charlie Day Spring Dam has no means of sufficiently and safely holding and/or passing flood flows. It is constructed of erodible soils and has no erosion protection measures incorporated. The dam is susceptible to failure by overtopping and erosion in response to a large storm event. Homes and apartments are located beginning approximately 30 feet from the downstream toe of the dam. There are also a school and an athletic field below the dam. Should the dam fail, the homes and apartment complex could all be damaged or destroyed depending on the discharge. Other nearby schools would likely experience shallow flooding if a dam failure were to occur. The total Population-At-Risk (PAR) is estimated to be approximately 40 persons.

To provide safe passage of flood flows, a temporary spillway consisting of an excavated channel and an earthfill dike would be constructed. The excavated channel would extend from the reservoir at elevation 4,988.5 and continues through the abandoned partially eroded airstrip pavement and then to the natural drainage. The dike would begin at a point about 30-40 feet south of the excavated channel (center to center) and approximately 500 feet from the beginning of the excavated channel. The spillway would discharge water to the east, away from schools, housing, and other developed areas. The overall length of the temporary spillway (both channel and dike) would be approximately 1,700 feet as measured along the water flow line. The dike would be built with the earth excavated from the channel, and the height of the dike would be increased as necessary to accommodate the full volume excavated. The rock excavated from the bottom of the channel would be used at various locations along the spillway to reduce erosion and particularly along the downstream end of the spillway channel and the north side of the dike, with priority given to areas more likely to initiate erosion. Average berm height is estimated to be 6 feet or greater, with a top width of 8 feet, and side slopes of 2:1.

Flood flows entering the reservoir would be directed to the east down the spillway channel to the existing large natural wash. These flows would follow the natural drainage and continue flowing to the south.

Soil sampling and testing will be performed. This will include six test pits and six hand auger pits. The sampling of the test pits would involve excavation of three test pits on the dam crest and three test pits near the downstream toe of the embankment. Each test pit would be approximately 4-feet wide, 4-feet long, and 3-feet deep. Material excavated from the test pits would later be used to backfill the pit. Hand auger pits would be excavated at six locations at the edge of the road located downstream of the embankment, and the diameter of auger holes would be approximately 6 inches. Ground disturbance for each auger hole would consist of an area approximately 5 x 5 feet to place drill cuttings. Each auger hole would be backfilled with cuttings mixed with water and cement.

The proposed project is considered to be a short-term measure to correct identified SOD deficiencies. Permanent corrective action will be planned during the next 10 years. Subsequent NEPA compliance will be implemented once details of the long-term action are known.

ALTERNATIVES CONSIDERED

Reclamation and BIA considered No Action and the Proposed Action in the EA. The Proposed Action was developed by Reclamation and BIA in cooperation with the Navajo Nation to address SOD deficiencies identified for Charley Day Spring Dam. The following alternatives were considered during planning.

No Action. Under the No Action alternative, no spillway would be constructed, and public safety concerns associated with the dam will persist.

Proposed Action. Under the Proposed Action, the proposed spillway will be constructed to safely convey flood flows from the dam and eliminate public health and safety hazards.

CONSULTATION, COORDINATION, AND PUBLIC INVOLVEMENT

The draft EA was distributed to potentially affected or interested entities, organizations and agencies and posted on Reclamation's Phoenix Area Office Web site for public review with a comment deadline of August 28, 2009. No comments were received.

Concurrent with development of the draft EA, Reclamation consulted with the Navajo Nation Fish and Wildlife Department (NNFWD) and surveyed the project area for federally threatened and endangered species listed by the U.S. Fish and Wildlife Service in Coconino County, Arizona.

Reclamation also consulted with the Navajo Nation Historic Preservation Department (NNHPD) in compliance with section 106 of the National Historic Preservation Act (NHPA).

MAJOR CONSIDERATIONS

The following issues that were addressed in the EA have been taken into consideration in Reclamation's deliberation whether a Finding of No Significant Impact is appropriate, or an environmental impact statement should be prepared.

1. Beneficial and adverse environmental impacts. The EA demonstrates that there will be no significant adverse or beneficial impacts on the quality of the human environment including water, air, land use, recreation, solid waste, socio-economics, public safety, and cultural and biological resources. Impacts to physical and biological resources will be highly localized and minor. Following construction, the affected area would be rehabilitated as appropriate to stabilize soils and minimize potential soil erosion and resultant indirect effects to vegetation.

2. Public health and safety. Public health will not be affected by the project. There will be no disproportionately high and adverse human health effects on populations defined in Executive Order 12898 (Environmental Justice) or the general public. Controlled access to active work areas and appropriate hazardous material management and waste disposal associated with construction will minimize any potential risks to public health, safety, and the environment. Corrective action will substantially reduce the risk to the public from potential dam failure.

3. Unique characteristics of the geographic area. The project area is not unique within its geographical setting and is similar to many other areas of tribal land in the region. There are no prime farmlands, wild and scenic rivers, wilderness areas, refuges, park lands, unique ecological areas, or other unique or rare characteristics of the land and aquatic environs that will be significantly affected. Existing wetland habitat associated with Charley Day Spring Reservoir will not be altered.

4. Degree to which the effects on the quality of the human environment are likely to be highly controversial. There are no known scientific controversies over the effects of the proposed project on the human environment.

5. Degree to which the effects are highly uncertain or involve unique or unknown risks. There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks. The proposed construction is consistent with standard engineering criteria used in the design of spillways.

6. Degree to which this action will establish a precedent for future action with significant effects. This project does not set a precedent for similar projects that may be implemented by Reclamation, BIA, or other agencies. Correction of deficiencies associated with faulty dams is a standard practice that enhances public safety and welfare.

7. Relationship to other actions with cumulatively significant impacts. Cumulative effects of the proposed project were considered in the EA. There are no known incremental effects of the

action that become significant when added to other past, present, or reasonably foreseeable future actions that have affected, or will affect, the project area.

8. Degree to which the action may affect districts, sites, objects, or structures listed on, or eligible for, the National Register of Historic Places, or may cause loss of significant cultural resources. A Class III (intensive) survey of the area of potential effect for the proposed project indicated that no significant historical or archaeological sites will be adversely affected. Reclamation consulted with NNHPD in accordance with Section 106 of the NHPA. The NNHPD concurred with Reclamation's no effect determination in March 2009. Should evidence of possible archeological artifacts be discovered during the course of this action, an archaeologist will be notified immediately with the location and nature of the finding. All work will cease at that location until archaeological clearance is given.

9. Degree to which the action may affect threatened, endangered, or sensitive species or their habitat. The EA demonstrates that tribally or federally listed species will not be affected by the proposed project. The NNFWD concurred with this no effect determination on July 21, 2009.

10. Whether the action violates Federal, State, or local laws or requirements imposed for the protection of the environment. The proposed project will not violate any Federal, State, or local environmental laws or requirements.

11. The proposed project will not adversely affect Indian Trust Assets.

FINDING OF NO SIGNIFICANT IMPACT

Based upon consideration of the impacts presented in the final EA, Reclamation and BIA have determined the Proposed Action will not significantly impact the human environment and that preparation of an environmental impact statement is not warranted.

Document cited above.

Bureau of Reclamation (Reclamation). 2009. Final environmental assessment. Charley Day Spring Dam Expedited Dam Safety Action Spillway and Dam Breach Design. Technical Service Center, Denver, CO.