

Project Factsheet for: Red Rock Drawdown and Cable Replacement

Date Last Updated: 02/10/2009 13:47

Project Location Information

Location: Marion County, IA
River Basin(s): Des Moines, Des Moines, Iowa / Cedar, Iowa / Cedar
State(s): IA
Congressional District(s): IA-3

Status

The selected alternative prior to the Flood of 2008 was a drawdown of the lake to allow replacement of the tainter gate cables (Alternative #2 below). As part of the 2008 Flood Recovery Effort, all project alternatives are currently being considered.

Description

Lake Red Rock has significant impact on the economy. It has the largest flood control capacity in the Mississippi Valley and provides flood protection for 200 miles downstream, with an annual benefit of over \$12,000,000. The lake is Iowa's largest at 15,000 surface acres and the project is Iowa's largest contiguous land base at over 50,000 acres. The recreation opportunities at Red Rock provide an annual benefit of over \$15,000,000 to the local economy. Eight campgrounds provide 50,000 nights of camping per year, fifteen miles of asphalt trail connect multiple recreation areas, the Tailwaters provides some of the best fishing in the state, and the thousands of acres of natural resource areas provide visitors with a healthy outdoor experience.

PROJECT ALTERNATIVES:

1. Cable Replacement and Associated Maintenance

The Lake Red Rock outlet control structure was designed and constructed with the lake water level at elevation 725 feet. The outlet structure consists of five cable operated tainter gates and 14 sluice gates. The spillway tainter gates have a sill elevation of elevation 735 feet which is 1 foot below the spillway crest of 736 feet. There are eight 1 inch diameter lifting cables (4 located at each side of the tainter gates) that are used to raise or lower the tainter gates. The cable connection bracket is at an elevation of 735 feet. When the conservation pool was raised in the Spring of 1992 to an elevation of 742 feet, seven feet of the tainter gate lifting cables and brackets were permanently submerged. During the Flood of 1993, five of the forty lifting cables failed due to corrosion and added stress caused by the flood, rendering the two outer gates inoperable. The tainter gate cables (a total of 40) were replaced in 1993. The cables have an estimated service life of 15 years. In order to maintain the conservation pool at 742 the tainter gates must be kept in a closed position making inspection, maintenance, and repair of the tainter gates and the tainter gate lifting cables virtually impossible without a drawdown of the conservation pool. Along with the cable replacement seal replacement and some minor sill work will be completed. The vinyl paint system on the tainter gates, applied in 1989, has an expected service life of 25-30. Minor touch up and repair will extend the life of the gates. The estimated cost of this project work is \$2,020,000,

2. Cable Replacement with no associated maintenance (Chosen due to insufficient funding for other work)

The primary risk factor item of the authorized drawdown is to replace the Tainter gate cables. If funds are unavailable for all work items 1 above, funding of just the cable replacement portion of these items would be a priority. Estimated cost of this project is \$250,000.

3. Bulkhead Installation

Alternatives for inspection and maintenance of the dam outlet structure and tainter gates were developed and include a periodic drawdown to elevation 732 feet; modification of project design and/or materials; installation of a bulkhead dewatering system; or no action. An alternative to a conservation pool draw down was strongly recommended during the public review period of the Environmental Assessment. The preferred alternative is the installation of a bulkhead dewatering system that would allow dewatering of an individual tainter gate bay. A bulkhead system installed on a bi-rail could be moved to each gate bay as required or secured to the side of the outlet structure when not in use. Similar systems are successfully being used at other Corps dam sites. A maximum of two operators would be required to move the bulkhead from the storage position to a gate and dewatering can be completed in a few minutes. The system can be installed on the existing bridge and dam structure with minimal modification to existing conditions. Periodic inspections and routine maintenance, repair and replacement of the tainter gates and cables could be performed using the bulkhead without the need for a drawdown. The estimated cost for the bulkhead system including planning, design, and construction management is \$2,330,000.

Authority

OM - Operations and Maintenance --

Project Manager Information

Name: Sherri Richardson-Duey

Phone: (641)828-7522

E-mail: sherry.l.richardson-duey@usace.army.mil