May 31, 1996

SRA-1200

Mr. David R. Tuthill, Jr., P.E.
Idaho Department of Water Resources
Western Region, 2735 Airport Way
Boise ID 83705-5082

Subject: Black Canyon Reservoir 6-inch Raise in Operating Water Surface Elevation

Dear Mr. Tuthill:

Enclosed for your review and comment is a draft of the Cooperative Agreement for Black Canyon Dam Crest Gates Structural Modification that would result in raising the reservoir operating water surface 6-inches. The 6-inch water surface rise would result in the creation of reservoir active storage capacity of about 500 acre-feet.

The agreement would be between the Bureau of Reclamation and an entity that you would have to identify. A representative from this entity would have to be designated as a contact person. That person's name would be included in the agreement on page 6: 2. Special Provisions, g. Grants and Cooperative Agreements Officer's Representative.

The estimated cost for Reclamation to complete the detailed study is about $47,000. This cost could vary if environmental and/or archeological activities are expanded beyond what we presently anticipate. We require 50 percent cost share for the detailed study. It is our understanding that $12,500 will be made available to us this year and the remainder during Federal fiscal year 1997 (October 1, 1996 through September 30, 1997).

Our intent is to begin work on engineering designs and estimates as soon as work can be scheduled after the agreement is executed and complete the environmental and archeological activities during fiscal year 1997.

Please provide me with comments you may have by June 28, 1996. If you have questions, contact me, telephone number 334-1751.

Sincerely,

Ronald J. Golus
Planning and Special Studies Officer

Enclosure

cc: Mr. Mark Limbaugh, Watermaster District No. 65, 102 N. Main Street,

COOPERATIVE AGREEMENT
for
Black Canyon Dam Crest Gates Structual Modification
between
?
and
Bureau of Reclamation
Snake River Area Office

1. Schedule

a. Background

Black Canyon Dam and Reservoir are located in the Payette River basin on the Payette River about 5 miles upstream from Emmett, Idaho. Black Canyon Dam is owned and operated by the Bureau of Reclamation and is a concrete gravity-type dam with an overflow spillway. The dam is the river diversion facility for the Emmett Irrigation and Black Canyon Irrigation Districts.

Most of the irrigated lands located below the dam and north of the Payette River are served by the Emmett Irrigation District. Two direct-connected turbine-driven pumps, located in the dam powerhouse, lifts reservoir water to the Emmett Irrigation District Canal which is located on the north side of the Payette River.

Water diversions for the Boise Project Payette Division are made into the Black Canyon Canal, a conveyance facility that is 29 miles long and extends from the dam south and west along the transition area from valley floor to foothills. The canal has a diversion capacity of about 1,300 cfs, servicing approximately 114,000 acres of land between the Payette and Boise Rivers.

A powerplant located at the base of the dam supplies power directly to the Boise Project, and, by contractual agreement for transmission line use with Idaho Power Company, to the Owyhee and Minidoka Projects. State Highway 52 is located near the reservoir on the north side, and the Idaho Northern & Pacific Railroad tracks run along the reservoir's south side.

Many modifications have been made to the dam since its construction in the 1920's. During repair work performed over the winter of 1951-52, 8-inch steel plates (flashboards) were welded onto the drum gates, raising the crest to its present-day elevation of 2,497.5-feet--the elevation at which the reservoir is maintained during the irrigation season. Over time, these flashboards have been bent by large debris and no longer provide a level crest elevation. Some years later, following installation of the flashboards, the four original Black Canyon Irrigation District Canal headgates were replaced by one gate. This gate is completely out of the water during times of low canal flows.

Large debris can float over the dam. During high inflow to the reservoir, debris accumulates and generally passes over the south dam gate; during low inflow to the reservoir, debris accumulates and passes over the north gate. The original canal trashracks are still in place and collect much of the smaller debris. Log booms upstream of the canal and penstock intakes were washed out in April 1994.

b. Purpose

In the spring of 1995, the Idaho Department of Water Resources asked the Bureau of Reclamation to initiate a study that would examine the potential for adding storage capacity to Black Canyon Reservoir which presently does not have active or usable storage capacity. The storage capacity would provide for improved regulation of both the Black Canyon Canal irrigation diversions and downstream releases to the Payette River to satisfy irrigation demands.

Cascade and Deadwood Reservoirs are located in the upper reaches of the Payette basin above Black Canyon Reservoir. Reclamation management of the non-contracted storage space in Cascade and Deadwood Reservoirs for salmon flow augmentation, minimum reservoir pools, and winter instream flows has resulted in all the reservoir storage space being allocated for specific uses. Any water that is not put to use is considered "operational waste", and operational waste is charged to irrigation accounts. A method has been developed to determine operational waste, which relates to a Payette River minimum flow of 135 cubic feet per second (cfs) at the Letha Gauging Station, downstream of Black Canyon Dam.

Cascade, Deadwood, and Black Canyon Reservoirs are managed to meet multi-purpose water needs and to keep operational waste to a minimum. This multi-purpose management strategy occasionally results in disruptions to the Black Canyon Canal diversion which in turn, creates problems for meeting farm turn-out demands.

Raising the water surface at Black Canyon Reservoir would result in water storage that could be used as a buffer to maintain Black Canyon Canal diversions without interruption, until storage water releases make their way down the river system from Cascade and/or Deadwood Reservoirs. The effect would be to improve regulation of the river system without affecting allocation of water supplies.

Another purpose is to define the funding and working relationships with Reclamation to complete a study. Feasibility study authority is not necessary because: (a) Reclamation does not intend to use the report to seek Congressional authority and funding for construction, and (b) the ? does not intend to seek Federal appropriations for implementation.

c. Objective

To raise the existing operating water surface of Black Canyon Reservoir 6-inches would result in a reservoir storage volume of about 500 acre-feet. To accomplish the change requires Black Canyon Dam crest gates' structural modifications.

d. Benefits

To allow for Black Canyon Reservoir water diversions to be regulated to benefit all water users so disruptions in water deliveries do not occur. During short periods of insufficient stream inflow into Black Canyon Reservoir, the 500 acre-feet of reservoir space created by the 6-inch raise in reservoir normal water surface could be drafted to maintain the diversion rate into Black Canyon Canal and releases to the Payette River below the dam, or both.

e. Reclamation Obligations

Accomplish the detailed study and report on findings.

f. Obligations of the recipient

Provide about 50 percent of detailed study cost funding.

g. Estimated cost to Reclamation

The detailed study cost has been estimated to be about $47,000 although costs could be greater if an environmental impact statement is required and/or additional archeologicical work is necessary. Reclamation would fund about 50 percent of these costs.

2. Special Provisions

a. Performance schedule

The proposed solution would involve:

* the removal of the existing flashboards from the gates,
* the installation of new flashboards, and
* modification of the existing Black Canyon Canal headgate

The description of work and associated estimated costs are summarized below:

1. Designs and estimates $32,000

* This estimate assumes that all investigative and design work will be accomplished by Reclamation and the design given to the project sponsor(s).

* The structural integrity of existing concrete below the crest gate pin points appears to have sufficient strength to carry the additional load of the structure modifications. However, the existing crest gates could require investigation and analysis as to their structural adequacy in doing this work. This estimate does not include time related with an in-depth analysis and testing. We have assumed that these gates are satisfactory.

* This estimate includes costs for the possibility of a limited amount of work required for the railroad and highway embankments.

* A brief investigation of the existing irrigation pumps taking water out of the reservoir will be required. We are assuming that the pumps will be able to float with the 6-inch rise in the reservoir water level and not require structual changes.

* The detailed reporting effort would probably contain a minimum of 5 engineering drawings along with specification paragraphs. This information would be given to the project sponsors in the form of a small reporting document.

2. Environmental Activities $9,000

* We are assuming that the environmental assessment will result in a categorical exclusion rather than the development of an environmenatal impact statement.

* If issues surface from the U.S. Fish and Wildlife Service or other analysis and an EA is needed additional costs would occur.

3. Cultural and Historical Activities $6,000

* <u>Effects upon historic structure</u>

Black Canyon Dam and Powerplant are most likely eligible for National Register of Historical Places because of association with significant historic events in the development of southwestern Idaho.

It appears that the structual changes would have no effect upon the historic integrity of the dam. If the Idaho State Historic Preservation Officer (SHPO) agrees, this means that we would need to do no documentation as part of the project. If the SHPO believes it would be an adverse effect, it should be minimal, which could be reasonably mitigated

through collection of large-format current view photos of the dam, and a commitment to complete full historic documentation in association with a future project that would have a greater effect upon the dam.

* Archeological

It appears that an archeological survey may not be needed. Worst case would entail an archeological survey of the rim of the pool areas where there could be significant horizontal expanse of the shoreline that would be inundated or eroded. The survey could cost up to $15,000.

If archeological sites were found, then it would be necessary to assess if the 6-inch raise could have a likely effect (increased erosion until a new slop stabilizes, or degradation from actual inundation). If that was the situation, then test excavations to determine if it could be a National Register eligible site would likely be needed, and mitigation might ultimately prove necessary. There would be a significant cost associated with this type of mitigation.

b. Deliverables

The deliverables are:

1. Reclamation would prepare a detailed study report that would be given to the project sponser.

c. Property and equipment furnished by the Government

None

d. Reporting requirements

Prepare a detailed study report.

e. Reimbursable costs

None

f. Payment

The sponsor is responsible for 50 percent of the detailed study costs and would transmit to the Bureau of Reclamation about half the study costs, or $23,500. If additional environmental and/or archeological work is required over what has been anticipated this agreement would need to be modified.

g. Grants and Cooperative Agreements Officer's Representative

Ronald J. Golus, Snake River Area Office Planning and Special Studies Officer, is designated as the Cooperative Agreements Officer's Representative. ? representative will coordinate with Ronald J. Golus to ensure that all Cooperative Agreement requirements are being met.

h. Effective date of Termination

This agreement become effective on the date of the last signature hereto and extends through March 31, 1997. Any party to this agreement may, for any reason, terminate the agreement as it applies to the party upon notice in writing to the other parties at least 60 days in advance of the effective date of the termination. Any party may formally request modification of agreement.