Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
Agenda Item 7c

Applicant: San Luis Valley Irrigation District

Amount Requested: $100,000

Water Activity Name: Rio Grande reservoir Multi-Use Rehabilitation – Refinement and Enhancement of Reservoir Reoperation and Optimization Model

Source of Funds: Rio Grande Basin Account

Matching Funds: None

Water Activity Purpose: Study or analysis of a structural project and nonstructural water activity

County: Alamosa, Rio Grande, and Saguache Counties

Drainage Basin: Rio Grande River Basin

Water Source: Rio Grande River Project

Staff Recommendation
The proposed project helps implement a SWSI IPP (Identified Project and Process) and the Rio Grand Basin Roundtable has identified rehabilitation of their reservoirs as an important need. Staff recommends approval of up to $100,000 from the Rio Grande Basin Account to help implement the refinement and enhancement of reservoir reoperation and optimization model contingent on resolution of the item in the issues/additional needs section.

Water Activity Summary:

Applicant
The San Luis Valley Irrigation District (District) is an irrigation district formed and operating pursuant to Title 37, Article 42 of the Colorado Revised Statutes. Its office is located in Center, Colorado. The District owns and operates the Farmers Union Canal, which diverts water from the Rio Grande River and delivers it through a network of over 100 miles of ditches to nearly 62,000 acres of land in Alamosa, Rio Grande and Saguache Counties. It also owns and operates Rio Grande Reservoir located on the headwaters of the Rio Grande River in Hinsdale, County, 20 miles southwest of Creede, Colorado. It is the only on-stream main stem reservoir on the Rio Grande in Colorado. The Reservoir's current storage capacity is approximately 54,000 acre-feet, the majority of which is presently used for the storage of irrigation water for use within the District.

Overview of the Water Activity
The purpose of this grant application is to fund the enhancement and refinement of the Reservoir Reoperation and Optimization model that was developed as part of the Phase 2 study of the rehabilitation and utilization of Rio Grande Reservoir for multi-use purposes. The District is finalizing its report from Phase 2 of the preliminary study. As part of the Phase 2 study, the District developed a model that provides the ability to analyze potential storage and releases from a rehabilitated Rio Grande Reservoir for various multi-use purposes. The model is designed to allow the user to allocate a portion of Reservoir storage to a particular use, for example Rio Grande Compact (Compact) Storage, and then to analyze a variety of release patterns from that storage account to determine the effect of those various release patterns on streamflows. The model was presented and preliminarily reviewed by the Division Engineer for Water Division No. 3, the President of the Rio Grande Water Users Association, various environmental interests including Trout Unlimited, The Nature Conservancy, and the Rio Grande Wetlands Initiative, and at the August Basin Roundtable meeting. The feedback from those meetings and potential stakeholders was that further refinement and enhancement of the model would assist all

water interests in the Basin in evaluating the potential impacts and benefits of changes in storage and release patterns from the Reservoir. The work proposed includes working with and providing assistance to various entities interested in utilizing storage at the Reservoir and making necessary enhancements to the model to provide specific results to those entities. Efforts would also be made to work with entities not directly utilizing storage in the Reservoir, but have an interest in environmental effects of the storage and release patterns on streamflows.

Specific tasks include:
Task 1. Refine Inputs and Modeling Needs for the Reservoir Reoperation and Optimization Model

- Modeling workshop with Division Engineer and representatives of water users, including the Rio Grande Water Users and Rio Grande Water Conservation District, to refine water use data and beneficial Model enhancements including: water rights data, Compact deliveries and flow projections, curtailments, stream gains and losses, direct flow storage utilization, and potential demands from groundwater management subdistricts
- Modeling workshops with potential storage pool holders, including Division Engineer (Compact Storage), Division of Wildlife, and San Luis Valley Water Conservancy District to refine long-term storage needs and water delivery scenarios to best address water use needs and potentially meeting stream flow and riparian demands
- Modeling workshops with environmental group representatives and U.S. Forest Service to refine and determine how to best optimize available flows to better meet fish, riparian and other environmental needs and quantify the benefits of the modeled changes.

Task 2. Enhance Model by Adding:

- Simplified representation of water rights and deliveries
- Curtailment calculations given available Compact storage and streamflow forecasting
- Refined stream gains and loss data
- Inclusion of stream flow forecasts
- Dynamic linkage of hydropower analysis to Model
- More detailed and quantifiable environmental flow analysis
- Other relevant data gathered from Division Engineer, water user organizations, storage participants and land use and environmental interests.

Task 3. Address other issues pertaining to hydropower usage including legal issues, permitting, existing power infrastructure evaluation, and investigation into available hydropower technical options.

Threshold and Evaluation Criteria
The application articulates how the project meets all four Threshold Criteria.

Funding Overview
Grant funding in the amount of $100,000 is being requested from the Rio Grande Basin Account. Funding from the WSRA constitutes 100% of refining and enhancing the model, but only a small portion of the overall project cost. In September of 2007 this project received $228,000 from the WSRA Statewide Account for preliminary design work.

Discussion:
The overall water activity if successful has the potential to address many important needs in the Rio Grande basin. Rapid growth in the South Fork area is placing pressure on limited upstream water supplies. Administration issues associated with the Rio Grande Compact have always been a challenge for the State Division Engineer. There is also potential to help address agricultural, and environmental/recreationally needs. If successful the water activity could address multiple needs, with the participation of multiple stakeholders and would be a tremendous asset for the Rio Grande basin. The added of helping address compact administration would also be of great value to the state.

The proposed enhancement and refinement of the Reservoir Reoperation and Optimization Model is in response to the opinions and requests of many water interests and stakeholders in the Rio Grande Basin that such enhancements and refinements would be extremely useful to all interested parties in the evaluation of the effects and potential benefits of rehabilitating and reoperation Rio Grande Reservoir.

Issues/Additional Needs:
The application included sufficient detail in the Scope of Work for staff evaluation, but a more detailed Scope of Work, budget, and schedule will be needed for contracting purposes. Please provide a detailed Scope of Work. For each task describe the task, the method that will be used, and the deliverable. Please provide a detailed budget outlining the costs associated with each task. Please provide a schedule for completion of each task.

All products, data and information developed as a result of this grant must be provided to CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform.