



COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT GRANT APPLICATION FORM



Terrace Reservoir Spillway Replacement

Name of Water Activity/Project

Approving Basin Roundtable

\$1,500,000

Amount from Statewide Account

1,475,000

Total Amount of Funds Requested

Amount from Basin Account

25,000

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1. Reference Information
2. Insurance Requirements (Projects Over \$25,000)
3. WSRA Standard Contract (Projects Over \$100,000)
4. W-9 Form (Required for All Projects)

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Instructions

To receive funding from the Water Supply Reserve Account (WSRA), a proposed water activity must be approved by the local Basin Roundtable AND the Colorado Water Conservation Board (CWCB). The process for Basin Roundtable consideration/approval is outlined in Attachment 1.

Once approved by the local Basin Roundtable, the applicant should submit this application, a detailed statement of work, detailed project budget, and project schedule to the CWCB staff by the application deadline.

The application deadlines are:

- Basin Account – 60 calendar days prior to the bi-monthly Board meeting
- Statewide Account – 60 calendar days prior to the September Board meeting

Board Meeting Dates	Basin Account Deadlines	Statewide Account Deadlines
July 20-21, 2010	May 21, 2010	n/a
September 21-22	July 23, 2010	July 23, 2010
November 16-17	September 17, 2010	n/a
January 2011	60 days prior	n/a
March 2011	60 days prior	n/a
May 2011	60 days prior	n/a
July 2011	60 days prior	n/a
September 2011	60 days prior	60 days prior

When completing this application, the applicant should refer to the WSRA Criteria and Guidelines available at: <http://cwcb.state.co.us/IWMD>.

The application, statement of work, budget, and schedule must be submitted in electronic format (Microsoft Word or text-enabled PDF are preferred) and can be emailed or mailed on a disk to:

Mr. Todd Doherty
Colorado Water Conservation Board
Water Supply Planning Section
WSRA Application
1580 Logan Street, Suite 200
Denver, CO 80203
Todd.Doherty@state.co.us

If you have questions or need additional assistance, please contact Todd Doherty of the Water Supply Planning Section at 303-866-3441 x3210 or todd.doherty@state.co.us.

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Part A. - Description of the Applicant (Project Sponsor or Owner);

1.	Applicant Name(s):	Terrace Irrigation Company, Inc.	
	Mailing address:	P.O. Box 109 Monte Vista, CO 81144	
	Taxpayer ID#:	84-0412531	Email address: Rodneyvirg@aol.com
	Phone Numbers: Business:	719-580-2128	
	Home:	719-589-2128	
	Fax:	719-589-2128 (call)	

2. Person to contact regarding this application if different from above:

Name:	Rodney Reinhardt
Position/Title	Project Manager

3. Eligible entities that may apply for grants from the WSRA include the following. What type of entity is the Applicant?

- ☐ Public (Government) – municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities and the local entity should be the grant recipient. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
- ☐ Public (Districts) – special, water and sanitation, conservancy, conservation, irrigation, or water activity enterprises.
- ☒ Private Incorporated – mutual ditch companies, homeowners associations, corporations.
- ☐ Private individuals, partnerships, and sole proprietors are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.
- ☐ Non-governmental organizations – broadly defined as any organization that is not part of the government.

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4. Provide a brief description of your organization

Terrace Irrigation Company (TIC) was incorporated in the 1940's. The TIC is a 501-C-12 nonprofit irrigation corporation with approximately 25 shareholders and about 9,000 acres of farmland under irrigation. TIC is owner of Terrace Reservoir which was built in the early 1900's on the main stem of the Alamosa River. At that time it was the largest earthen dam in the US.

TIC delivers surface water to the shareholders from two sources: 1) direct flow from the Alamosa River with various priorities; and 2) stored winter flows and peak runoff during the irrigation season. This stored water is appropriated to each shareholder according to their number of shares. Each shareholder can call for their water as needed for each individual farming operation.

The reservoir capacity is 15,182.3 acre feet. In the 1980's the State Engineer Office (SEO) placed a 7-foot storage restriction on the reservoir limiting the storage capacity to 13,180.9 acre feet. The primary reason for this restriction was the determination that the spillway was too small to handle the inflow design flood. There is about 2,000 acre feet of storage space that is not utilized due to this administrative restriction.

5. If the Contracting Entity is different then the Applicant (Project Sponsor or Owner) please describe the Contracting Entity here.

N/A

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6. Successful applicants will have to execute a contract with the CWCB prior to beginning work on the portion of the project funded by the WSRA grant. In order to expedite the contracting process the CWCB has established a standard contract with provisions the applicant must adhere to. A copy of this standard contract is included in Attachment 3. Please review this contract and check the appropriate box.

☒

The Applicant will be able to contract with the CWCB using the Standard Contract

☐

The Applicant has reviewed the standard contract and has some questions/issues/concerns. Please be aware that any deviation from the standard contract could result in a significant delay between grant approval and the funds being available.

7. The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant.
N/A

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Part B. - Description of the Water Activity

1. Name of the Water Activity/Project:

Terrace Reservoir Spillway Replacement

2. What is the purpose of this grant application? (Please check all that apply.)

☐

Environmental compliance and feasibility study

☐

Technical Assistance regarding permitting, feasibility studies, and environmental compliance

☐

Studies or analysis of structural, nonstructural, consumptive, nonconsumptive water needs, projects

Study or Analysis of:

☐

Structural project or activity

☐

Nonstructural project or activity

☐

Consumptive project or activity

☐

Nonconsumptive project or activity

☒

Structural and/ or nonstructural water project or activity

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3. Please provide an overview/summary of the proposed water activity (no more than one page). Include a description of the overall water activity and specifically what the WSRA funding will be used for.

The Colorado State Engineer (SEO) has determined that the existing Terrace Reservoir spillway has insufficient capacity to pass the Probable Maximum Flood (PMF). Consequently, due to this deficiency, there is a 2,000 AF State restriction on Terrace Reservoir storage. The funding requested in this proposal represents Phase II of WSRA funding, with the previous funds used to obtain mapping, surveying, and hydrology studies. Those studies, together with subsequent investigations and data, have determined that the spillway cannot simply be repaired or rehabilitated but must be replaced. All funds requested in the present proposal will be used exclusively for the replacement of the present spillway with a labyrinth design spillway. A hydrologic report established a new design inflow flood that the new spillway must pass. This report was generated using the Extreme Precipitation Analysis Tool (EPAT), which is the latest computer model developed in order to determine a precipitation event. The study was approved by the SEO.

This project (Project) is a collaboration between Terrace Irrigation Company and Alamosa Riverkeeper®, which has a goal of establishing an instream flow on the Alamosa River. After the replacement of the spillway and lifting of this storage restriction, Terrace Irrigation Company will dedicate 2,000 acre feet of storage capacity in its reservoir to instream flow.

The proposed modifications to Terrace spillway includes a demolition of the existing spillway, construction to raise the existing saddle dike to the main Terrace dam crest elevation, and construction of a new reinforced concrete labyrinth spillway control structure, chute, and stilling basin. The new structure will be located along an alignment similar to the existing spillway, but will transition from 65 feet to 45 feet. An underdrain system will be installed beneath the spillway chute and stilling basin. In addition, grouted anchors will be installed beneath the labyrinth crest structure slab and stilling basin slab to resist buoyant and uplift pressures.

Instrumentation proposed for the Terrace Reservoir Dam saddle dike consists of 12 new piezometers installed through the raised saddle dike and in the glacial till slope downstream of the raised saddle dike, and six dam station markers, which will also serve as settlement monuments, installed at 100-foot centers across the dam crest. A staff gage, mounted to or near the labyrinth crest control structure, will also be included in the design. The staff gage would be used to measure reservoir storage level.

As a result of this Project, the reservoir will be able to use its full 15,182.3 acre feet capacity instead of the 7-foot restriction of 13,180.9 acre feet capacity.

Part C. – Threshold and Evaluation Criteria

1. Describe how the water activity meets these **Threshold Criteria**. (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines.)

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- a) The water activity is consistent with Section 37-75-102 Colorado Revised Statutes.¹

TIC is an eligible entity, being a 501 (c) (12); the Project requests funding for eligible water activities, which include “structural and/or nonstructural water project or activity.” The Project helps the Rio Grande Basin to sustainably meet its consumptive and nonconsumptive needs by addressing irrigation needs and providing storage space for instream flow on the Alamosa River. Upon submission to CWCB, as stated in the Chairman’s cover letter, this Project has been reviewed and approved for funding by the Rio Grande Interbasin Roundtable.

- b) The water activity underwent an evaluation and approval process and was approved by the Basin Roundtable (BRT) and the application includes a description of the results of the BRTs evaluation and approval of the activity. At a minimum, the description must include the level of agreement reached by the roundtable, including any minority opinion(s) if there was not general agreement for the activity. The description must also include reasons why general agreement was not reached (if it was not), including who opposed the activity and why they opposed it. Note- If this information is included in the letter from the roundtable chair simply reference that letter.

A cover letter from Mike Gibson, Chairman of the Rio Grande Interbasin Roundtable, contains this information and is attached.

¹ 37-75-102. Water rights - protections. (1) It is the policy of the General Assembly that the current system of allocating water within Colorado shall not be superseded, abrogated, or otherwise impaired by this article. Nothing in this article shall be interpreted to repeal or in any manner amend the existing water rights adjudication system. The General Assembly affirms the state constitution's recognition of water rights as a private usufructuary property right, and this article is not intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law. (2) The General Assembly affirms the protections for contractual and property rights recognized by the contract and takings protections under the state constitution and related statutes. This article shall not be implemented in any way that would diminish, impair, or cause injury to any property or contractual right created by intergovernmental agreements, contracts, stipulations among parties to water cases, terms and conditions in water decrees, or any other similar document related to the allocation or use of water. This article shall not be construed to supersede, abrogate, or cause injury to vested water rights or decreed conditional water rights. The General Assembly affirms that this article does not impair, limit, or otherwise affect the rights of persons or entities to enter into agreements, contracts, or memoranda of understanding with other persons or entities relating to the appropriation, movement, or use of water under other provisions of law.

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- c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.² Specifically describe how the water activity either furthers the Roundtable's basin-wide water needs assessment or meets a consumptive or non-consumptive water supply need identified in the Roundtable's working needs assessment.

The Rio Grande Inter-Basin Roundtable (RGRT) has determined that the single, most critical water issue confronting the Rio Grande Basin is the current unsustainable management of surface and ground water. Thus, the RGRT has made the decision that water activities that address this issue be favorably considered for funding from the Water Supply Reserve Account, provided that the proposed water activity meets the SWSI findings for the Basin and the CWCB and IBCC Criteria and Guidelines for funding. The cover letter from Chairman Mike Gibson accompanying this proposal confirms that this water activity meets the provisions of CRS Section 37-75-104(2).

- d) Matching Requirement: For requests from the Statewide Fund, the applicants is required to demonstrate a 20 percent (or greater) match of the request from the Statewide Account. Sources of matching funds include but are not limited to Basin Funds, in-kind services, funding from other sources, and/or direct cash match. Past expenditures directly related to the project may be considered as matching funds if the expenditures occurred within 9 months of the date the application was submitted to the CWCB. Please describe the source(s) of matching funds. (NOTE: These matching funds should also be reflected in your Detailed Budget in Part D of this application)

This Project has a total cost of \$4.42Million. Of that amount, \$2Million has been committed by the Natural Resource Damage Settlement fund. Terrace Reservoir Company, with assistance from CWCB, is restructuring its debt to CWCB to provide \$920,000. Studies have been performed over the past three years in the amount of \$250,000. This represents far more than a dollar-for-dollar match.

² 37-75-104 (2)(c). Using data and information from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the on-going Statewide Water Supply Initiative, develop a basin-wide consumptive and nonconsumptive water supply needs assessment, conduct an analysis of available unappropriated waters within the basin, and propose projects or methods, both structural and nonstructural, for meeting those needs and utilizing those unappropriated waters where appropriate. Basin Roundtables shall actively seek the input and advice of affected local governments, water providers, and other interested stakeholders and persons in establishing its needs assessment, and shall propose projects or methods for meeting those needs. Recommendations from this assessment shall be forwarded to the Interbasin Compact Committee and other basin roundtables for analysis and consideration after the General Assembly has approved the Interbasin Compact Charter.

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2. For Applications that include a request for funds from the Statewide Account, describe how the water activity meets the **Evaluation Criteria**. (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines.)

Tier 1: Promoting Collaboration/Cooperation and Meeting Water Management Goals and Identified Water Needs

- a. The water activity addresses **multiple needs or issues, including consumptive and/or non-consumptive needs**, or the needs and issues of multiple interests or multiple basins. This can be demonstrated by obtaining letters of support from other basin roundtables (in addition to an approval letter from the sponsoring basin).

By replacing the spillway at Terrace Reservoir, the Project lifts the State's storage restriction on the reservoir, providing the storage required for up to 2,000 AF of instream flow water rights acquired and/or soon to be acquired by Alamosa Riverkeepers®. Instream flow in the Alamosa will improve the health of riparian corridors and the fishery, which is beginning to recover by the new \$16 million water treatment plant at Summitville. In addition, instream flow in the Alamosa River will improve irrigation water delivery and contribute to additional recharge of the Basin's aquifers, with the potential to raise the groundwater water levels. As an additional benefit, this Project will improve the function of the historic floodplain, reducing the risk of flood for Capulin and its surrounding farming communities.

In the Rio Grande Basin's semi-arid environment, water is over appropriated, with many competing demands placed on it by an ever-increasing population. Lifting the storage restriction on Terrace Reservoir is the one critical element – storage -- needed in order to create instream flow on the Alamosa. CWCB has long recognized the need “to correlate the activities of mankind with the reasonable preservation of the natural environment,” and is responsible for the appropriation, acquisition, protection, and monitoring of instream flow. Replacing the Terrace spillway allows for raising the reservoir level, thus enhancing wildlife habitat, encouraging recreation, and improving the fishery.

- b. The number and types of entities represented in the application and the degree to which the activity will promote cooperation and collaboration among traditional consumptive water interests and/or non-consumptive interests, and if applicable, the degree to which the water activity is effective in addressing intrabasin or interbasin needs or issues.

Entities joining in support of the applicant, Terrace Reservoir, include the principal partner of the Alamosa Riverkeeper®. Joining in this effort over the past few years, as studies were prepared in anticipation of this proposal, are the following entities.

- Division of Parks and Wildlife – maintaining conservation pool at Terrace, stocking the reservoir with rainbow trout, and advising the Project on fishery habitat and flows required in the Alamosa below Terrace Reservoir.
- Capulin Water District – seeking remedies to the receding water levels of the aquifer, CWD is strongly in favor of this Project.
- Conejos County Board of Commissioners – their letter of support is included.
- San Luis Valley Irrigation District – their interest and advice has sustained this project for many years, and their letter of support is attached.
- Alamosa-La Jara Conservancy District – Supporting this Project for many years, their letter of support is attached.

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- Valle del Sol Community Center – this organization is the parent nonprofit of many neighborhood educational and family-oriented activities in Capulin. Their letter of support expresses the importance of this project to residents and families who live near the Alamosa River and who look forward to its return to good health and sustainability.

Administering and enabling the storage of instream flow includes this Project's critical collaborative partner, the Colorado Water Conservation Board. As Alamosa Riverkeeper® acquires water rights for instream flow, those rights are defined exclusively by CWCB as nonconsumptive in-channel uses of water in order to establish minimum flows below Terrace Reservoir. "These rights are administered within the State's water right priority system to preserve or improve the natural environment to a reasonable degree." CWCB is a vital partner in this Project.

This Project is not only a reservoir upgrade project, replacing a spillway which has long since exceeded its useful life, but its primary focus is to create instream flow in the Alamosa River. As listed above, multiple stakeholders have come together to make this possible. The Project also benefits agricultural users by minimizing the risk of flood, and enabling Terrace to raise the level of its reservoir 7 feet, removing the State-imposed storage restriction.

Water flowing in a stream yields other kinds of high value which cannot be quantified, not only for fishermen and recreationists, but for residents and families who live and play in the semi-arid areas in and around Capulin. In addition to specific benefits to wildlife and aquatic life, there is a public good which comes from a flowing mountain stream, known best by an entire watershed community which struggles under the economic burden of extremely high levels of poverty. The benefits of instream flow in the Alamosa are a boon to everyone, and providing storage to make this happen is absolutely critical.

- c. The water activity helps implement projects and processes identified as helping meet Colorado's future water needs, and/or addresses the gap areas between available water supply and future need as identified in SWSI or a roundtable's basin-wide water needs assessment.

By replacing the dam spillway, Terrace Reservoir addresses a priority identified by the Rio Grande Basin to upgrade, repair and in some cases replace reservoir facilities which are deteriorated or which have been limited in their operation due to needed repairs. In this Project, not only does TIC remove the operational constraints imposed by the storage restriction, it helps meet the Rio Grande Basin's identified priorities of replenishing its aquifer and upgrading its reservoirs.

This Project addresses water supply and future needs in two ways: Depending on the Rio Grande Decision Support System model, which is pending at this time, instream flow may help to replace injurious depletions to the Alamosa River from groundwater pumping. In addition, the Capulin Water District has expressed its support for this Project as a way to help offset the depletion of the aquifer, which is where the Town of Capulin gets its water supply.

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Tier 2: Facilitating Water Activity Implementation

- d. Funding from this Account will reduce the uncertainty that the water activity will be implemented. For this criterion the applicant should discuss how receiving funding from the Account will make a significant difference in the implementation of the water activity (i.e., how will receiving funding enable the water activity to move forward or the inability obtaining funding elsewhere).

This is a complex Project which has evolved over several years of study, preparation, and collaboration. The expense of the Project, which initially was prohibitive, has been reduced to a manageable, but still somewhat formidable sum of \$4,420,000. Collaboration and an integrated approach to funding has been the only way for Terrace Irrigation Company to approach implementation of this water activity. TIC is working with CWCB to restructure its existing loan portfolio and to create an additional \$920,000 of funds specifically for this project, thus reducing the uncertainty that this water activity will be implemented. A critical element in this funding package was to obtain approval for the release of \$2,000,000 from the Natural Resources Damage funds. Approval for this release was received early in October 2011, contingent upon obtaining the matching funds requested in this proposal. This proposal, therefore, represents the matching funds needed in order to leverage the entire project. There is no conceivable way that TIC could raise the \$1.5 Million requested in this proposal. All parties to this Project feel that the leverage provided in this request is critical, ensuring that other major funds will be available and this Project, costing \$4.42 Million, will be implemented.

- \$2,000,000 - NRD funds – which have been committed
- \$ 920,000 – Terrace Irrigation Company Loan
- \$1,500,000 - WSRA funds requested in this proposal
- \$4,420,000 - TOTAL PROJECT FUNDS

Verification of all funding sources will be provided in hard copy and in electronic format, either as attachments to this proposal or in supporting documentation.

- e. The applicant must demonstrate its ability to implement the proposed activity.

TIC has selected URS Corporation to design and implement this Project. With more than 48,000 employees in more than 40 countries, and with revenues of \$9.18 Billion in 2010, TIC is confident in its ability to implement this Project.

The applicant is providing matching funds and the amount of matching funds or is obtaining partial funding from other sources and the amount and source of such other funds or is providing demonstrable in-kind contributions.

Yes, as described above.

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Tier 3: The Water Activity Addresses Issues of Statewide Value and Maximizes Benefits

- f. The water activity helps sustain agriculture, and open space, or meets environmental or recreational needs.

Through its Consumptive Use Subcommittee, the Rio Grande Basin Roundtable has performed a Consumptive Use Needs Assessment, in which agricultural use and related groundwater shortages are included as major issues. The Basin has also completed and approved Phase I of its Nonconsumptive Needs Assessment. By 2050, a total shortfall of 180,000 AF is predicted, of which 160,000 AF is attributed to the agricultural groundwater shortage. Since instream flow plays a significant role in augmenting groundwater levels, this Project can be seen as a proactive and positive strategy, supplementing this Basin's other efforts, such as the fallowing of agricultural areas and the implementation of Subdistrict regulations.

- i. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado State species of concern.

This is a multi-purpose project that benefits both water users and native species. The recovery of the threatened and endangered wildlife species will benefit from the extended flows which supply food and water when historically the river was dry. It fulfills a strategy strongly supported by CWCB's Instream Flow Program that benefits consumptive water users, the riparian and aquatic environments, and stream recreation. By combining the consumptive use purposes of Terrace Irrigation Company with the resource conservation and restoration focus of Alamosa Riverkeepers®, this project acknowledges the importance of the environmental and recreational benefits derived from agricultural water use, storage reservoirs, and other consumptive water uses and water management.

Part D. – Required Supporting Material

1. Water Rights, Availability, and Sustainability

This information is needed to assess the viability of the water project or activity. Please provide a description of the water supply source to be utilized, or the water body to be affected by, the water activity. This should include a description of applicable water rights and the name/location of water bodies affected by the water activity.

The Alamosa River watershed comprises 148 square miles in the San Luis Valley of south-central Colorado. The mainstem of the Alamosa River is 51 miles long, extending from near the Continental Divide to east of La Jara. Elevations vary from over 13,000 feet to about 7,600 feet where the river ends at the Lowland and Head Overflow ditch headgates just east of Highway 285. Primary tributaries to the Alamosa River include Treasure Creek, Iron Creek, Alum Creek, Bitter Creek and Wightman Fork. Several smaller tributaries also drain into the Alamosa River.

The Alamosa Watershed is located in Rio Grande and Conejos Counties. Land ownership is primarily federal and private. Most of the watershed upstream of Terrace Reservoir is in the Rio Grande National Forest. Another portion is part of the Bureau of Land Management's San Luis Resource Area. The

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land in the valley below Terrace Reservoir is primarily privately owned and is used for agricultural purposes. Some of Colorado's oldest and predominantly Hispanic communities are located in the Alamosa River watershed, including La Jara and Capulin.

Key features in the watershed include:

- ◆ Summitville Mine, a gold mine that operated from 1986 to 1992 using open pit and cyanide leach methods. Summitville is currently a CERCLA Superfund site.
- ◆ Terrace Reservoir, a storage impoundment for irrigation water;
- ◆ Extensive irrigated agriculture in the lower watershed
- ◆ Extensive forested areas and hydrothermally altered geology in the upper watershed.

Terrace Reservoir (State Dam ID No. 210102) is located on the Alamosa River about 12 stream miles upstream of Capulin. Terrace Reservoir is owned and operated by the Terrace Irrigation Company. The principal purpose of the reservoir is to store water for agricultural uses. There are 25 shareholders and 831-7/8 shares of stock. The TIC sets an annual assessment to be paid by the shareholders. On average, 15,339 acre-feet of water is diverted by the TIC through Terrace Main Canal and the Alamosa Creek Canal during any given year (CWCB, 2004). The reservoir has a storage capacity of about 15,200 acre-feet at normal operating pool and a corresponding footprint of about 300 acres. The reservoir is impounded by a large earth and rockfill dam constructed across a narrow canyon cut down by the river through volcanic rocks. The various phases of the dam construction began in 1903, and construction was completed in 1912.

2. Please provide a brief narrative of any related or relevant previous studies.

Under contract to the Colorado Water Conservation Board, the *Alamosa River Watershed Restoration Master Plan Environmental Assessment Final Report* was produced. The incentive for the Master Plan was provided by a legal settlement over impacts of the Summitville Mine Superfund Site. That settlement also provided funding for the study and mitigation measures to be developed by the Master Plan. The scope of the Master Plan includes the entire watershed (not just the area directly affected by the Summitville Mine), and covers a broad array of natural resources and watershed functions and values. The result is a multi-disciplinary approach to watershed assessment that has produced a prioritized plan for watershed restoration and enhancement. Specific projects are identified, along with potential financing sources, including funds from the Summitville legal settlement. The Master Plan is available at: <http://mountainprairie.fws.gov/nrda/summitvilleColo/Summitville.htm>.

In March, 2009, URS completed a Terrace Reservoir Flood Hydrology Report. The purpose of the flood hydrology analysis was to develop the Inflow Design Flood (IDF) that could be used for the basis of the spillway design. This included the development of the 100-year storm event, and the general and local Probable Maximum Precipitation (PMP) storm events. The PMP storm events were prepared by two methods so their results could be compared. The methods included Extreme Precipitation Analysis Tool (EPAT) and Hydrometeorological Report (HMR)-55A methods. The runoff coefficient K_n for the

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critical storm was selected based on a sensitivity analysis performed on the upper and lower Kn values published in Reclamation's Flood Hydrology Manual and selected Kn value based on similar watersheds presented in Reclamation's Flood Hydrology Manual. The floods were routed through the reservoir and existing dam configuration to determine the critical storm event for the project. The critical storm event was selected as the basis for spillway design. URS used existing mapping for the project.

After analyzing the flood values developed from the different storms and Kn values, the storm and Kn value approved by the SEO for the IDF was the EPAT local storm event at Dallas Creek, and a Kn value of 0.073. The IDF produced a peak reservoir inflow of approximately 25,505 cfs. The spillway improvements proposed in this Project are required to safely pass the IDF without overtopping the spillway dike and main dam. The spillway capacity will need to be increased from its present capacity of 10,500 cfs to accommodate the routed 25,505 cfs IDF capacity.

3. Statement of Work, Detailed Budget, and Project Schedule

The statement of work will form the basis for the contract between the Applicant and the State of Colorado. In short, the Applicant is agreeing to undertake the work for the compensation outlined in the statement of work and budget, and in return, the State of Colorado is receiving the deliverables/products specified. Please note that costs incurred prior to execution of a contract or purchase order are not subject to reimbursement. Please provide a detailed statement of work using the following template. Additional sections or modifications may be included as necessary. Please define all acronyms. If a grant is awarded an independent statement of work document will be required with correct page numbers.

Statement of Work

WATER ACTIVITY NAME - Terrace Reservoir Spillway Replacement

GRANT RECIPIENT – Terrace Irrigation Company

FUNDING SOURCE -

- \$ 25,000 – Rio Grande Basin WSRA funds**
- \$1,475,000 – Statewide WSRA funds**
- \$2,000,000 – Natural Resources Damages Fund**
- \$ 920,000 – Terrace Irrigation Company**

INTRODUCTION AND BACKGROUND

Provide a brief description of the project. (Please limit to no more than 200 words; this will be used to inform reviewers and the public about your proposal)

Replacement of the Terrace spillway includes a demolition of the existing spillway, construction to raise the existing saddle dike to the main Terrace dam crest elevation, and construction of a new reinforced concrete labyrinth spillway control structure, chute, and stilling basin. The new structure will be located

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along an alignment similar to the existing spillway, but will transition from 65 feet to 45 feet. An underdrain system will be installed beneath the spillway chute and stilling basin. In addition, grouted anchors will be installed beneath the labyrinth crest structure slab and stilling basin slab to resist buoyant and uplift pressures, along with related instrumentation.

OBJECTIVES

List the objectives of the project

Replace the spillway at Terrace Reservoir

Lift the State-imposed storage restriction

TASKS

Provide a detailed description of each task using the following format

Tasks will be determined upon review and approval by the SEO. Meanwhile TIC submits the following as elements of the Project.

ELEMENT # 1 – Remove Old Spillway

Description of Task – Remove old spillway, including cleanup of debris and erosion control.

Method/Procedure -- (details available after SEO approves Final Design)

Deliverable – Prepared to install new spillway. lifting of the State-imposed restriction and availability of 2,000 AF of storage dedicated to instream flow.

ELEMENT # 2 – Foundation Preparation

Description -- Site excavation and preparation including rock removal and topsoil stripping and stockpiling, and formation of foundation anchors.

Method/Procedure -- (details available after SEO approves Final Design)

Deliverable – Prepared to install filter/drain system and instrumentation.

ELEMENT # 3 – Filter/Drain System

Description -- Install filter/drain system under spillway floor and install instrumentation as detailed in Final Design

Method/Procedure -- (details available after SEO approves Final Design)

Deliverable – Prepared to raise spillway dike.

ELEMENT # 4 – Raise Spillway Dike

Description -- Raise spillway dike to the required design height.

Method/Procedure -- (details available after SEO approves Final Design)

Deliverable – Prepared to form and pour concrete.

ELEMENT # 5 – Form and Pour Concrete

Description -- Form and pour concrete floor and walls according to Final Design

Method/Procedure -- (details available after SEO approves Final Design)

Deliverable – Prepared to clean up site.

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ELEMENT # 6 – Cleanup and Reclamation

Description -- Site cleanup and reclamation, including fencing and seeding.

Method/Procedure -- (details available after SEO approves Final Design)

Deliverable – Project is complete. Submit final reports to CWCB.

ELEMENT # 7 – Final Reports

REPORTING AND FINAL DELIVERABLE

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

BUDGET

Provide a detailed budget by task including number of hours and rates for labor and unit costs for other direct costs (i.e. mileage, \$/unit of material for construction, etc.). A detailed and perfectly balanced budget that shows all costs is required for the State's contracting and purchase order processes. (next page)

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Bid Item	Description	Qty.	UM	Estimate		Total
				Unit Price		
1	Mobilization	1	LS	\$ 340,000.00	\$	340,000.00
2	Selective Demolition	1	LS	\$ 75,000.00	\$	75,000.00
3	Clearing & Grubbing	3.7	AC	\$ 2,500.00	\$	9,250.00
4	Erosion & Sediment Control	1	LS	\$ 15,000.00	\$	15,000.00
5	Stripping & Stockpiling Topsoil	2900	CY	\$ 4.00	\$	11,600.00
6	Dewatering	1	LS	\$ 20,000.00	\$	20,000.00
7	Unclassified Excavation	30100	CY	\$ 7.00	\$	210,700.00
8	Rock Excavation	9850	CY	\$ 25.00	\$	246,250.00
9	Embankment Fill	17310	CY	\$ 7.00	\$	121,170.00
10	Select Fill	1670	CY	\$ 10.00	\$	16,700.00
11	Excavated Waste Material Placement	22640	CY	\$ 5.00	\$	113,200.00
12	Aggregate Base Course	510	CY	\$ 50.00	\$	25,500.00
13	Riprap Bedding	1000	CY	\$ 50.00	\$	50,000.00
14	Riprap (D50=12")	630	CY	\$ 80.00	\$	50,400.00
15	Riprap (D50=24")	2600	CY	\$ 80.00	\$	208,000.00
16	Filter Sand	515	CY	\$ 60.00	\$	30,900.00
17	Drain Stone	440	CY	\$ 60.00	\$	26,400.00
18	Foundation Preparation	1400	SY	\$ 11.00	\$	15,400.00
19	Foundation Anchors	1840	LF	\$ 40.00	\$	73,600.00
20	Spillway Underdrains (HDPE)	1410	LF	\$ 40.00	\$	56,400.00
21	Spillway Underdrain Outfall Structure	1	LS	\$ 10,000.00	\$	10,000.00
22	Spillway Concrete Slabs	2130	CY	\$ 650.00	\$	1,384,500.00
23	Spillway Concrete Walls	1150	CY	\$ 750.00	\$	862,500.00
24	Concrete Mud Mat	160	CY	\$ 250.00	\$	40,000.00
25	Chain Link Fence & Gates	720	LF	\$ 10.00	\$	7,200.00
26	Instrumentation	1	LS	\$ 10,000.00	\$	10,000.00
27	Piezometers	570	LF	\$ 25.00	\$	14,250.00
28	Topsoil Placement	2900	CY	\$ 5.00	\$	14,500.00
29	Seeding and Reclamation	3.7	AC	\$ 3,250.00	\$	12,025.00
				Total	\$	4,070,445.00
Engineering - Construction						\$350,000.00
Management						
Total with Construction Engineering and Construction Management						\$4,420,445.00

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SCHEDULE

Provide a project schedule including key milestones for each task and the completion dates or time period from the Notice to Proceed (NTP). This dating method allows flexibility in the event of potential delays from the procurement process.

PROCEDURAL TIMELINE

<u>Phase I</u>	<u>- Planning (already funded by NRDS)</u>
	Previous studies – mapping, surveying, and hydrology (only did hydrology)
	Complete Final Design
<u>Phase II</u>	<u>- Implementation</u>
13-Oct-11	NRDS Approval of \$2 Million
8-Nov-11	RGBRT Proposal \$25K Basin, \$1,475,000 from Statewide fund
1-Dec-11	Submit Final Design to SEO - 6 months
31-Dec-11	Terrace Shareholders approve CWCB loan strategy
1-Mar-12	CWCB Review and Approval
1-Jan-12	Environmental Permitting Process begins (4-5 months review)
1-May-12	SEO Approval of Final Design
1-May-12	Environmental Permit Received
1-May-12	Construction Bid Process can Proceed (2 months)
1-Jun-12	CWCB Notice to Proceed
1-Jul-12	Construction Begins
31-Dec-12	Project Complete

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PAYMENT

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the 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 help promote the development of a common technical platform.

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The above statements are true to the best of my knowledge:

Signature of Applicant:

Print Applicant's Name:

Project Title:

—

Return this application to:

Mr. Todd Doherty
Intrastate Water Management and Development Section
COLORADO WATER CONSERVATION BOARD
1580 Logan Street, Suite 200
Denver, CO 80203

To submit applications by Email, send to: todd.doherty@state.co.us

Attachment 1
Reference Information

The following information is available via the internet. The reference information provides additional detail and background information.

Colorado Water Conservation Board (<http://cwcb.state.co.us/>)

Loan and Grant policies and information are available at – <http://cwcb.state.co.us/Finance/>

Interbasin Compact Committee and Basin Roundtables (<http://ibcc.state.co.us/>)

Interbasin Compact Committee By-laws and Charter (under Helpful Links section) –

<http://ibcc.state.co.us/Basins/IBCC/>

Legislation

House Bill 05-1177 - Also known as the Water for the 21st Century Act –

<http://cwcbweblink.state.co.us/DocView.aspx?id=105662&searchhandle=28318>

House Bill 06-1400 – Adopted the Interbasin Compact Committee Charter –

<http://cwcbweblink.state.co.us/DocView.aspx?id=21291&searchhandle=12911>

Senate Bill 06-179 – Created the Water Supply Reserve Account –

<http://cwcbweblink.state.co.us/DocView.aspx?id=21379&searchhandle=12911>

Statewide Water Supply Initiative

General Information – <http://cwcb.state.co.us/TWMD/>

Phase 1 Report – <http://cwcb.state.co.us/TWMD/SWSITechnicalResources/SWSIPhaseIReport/>

Attachment 2
Insurance Requirements

NOTE: The following insurance requirements taken from the standard contract apply to WSRA projects that exceed \$25,000 in accordance with the policies of the State Controller's Office. Proof of insurance as stated below is necessary prior to the execution of a contract.

13. INSURANCE

Grantee and its Sub-grantees shall obtain and maintain insurance as specified in this section at all times during the term of this Grant: All policies evidencing the insurance coverage required hereunder shall be issued by insurance companies satisfactory to Grantee and the State.

A. Grantee

i. Public Entities

If Grantee is a "public entity" within the meaning of the Colorado Governmental Immunity Act, CRS §24-10-101, et seq., as amended (the "GIA"), then Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the GIA. Grantee shall show proof of such insurance satisfactory to the State, if requested by the State. Grantee shall require each Grant with Sub-grantees that are public entities, providing Goods or Services hereunder, to include the insurance requirements necessary to meet Sub-grantee's liabilities under the GIA.

ii. Non-Public Entities

If Grantee is not a "public entity" within the meaning of the GIA, Grantee shall obtain and maintain during the term of this Grant insurance coverage and policies meeting the same requirements set forth in §13(B) with respect to sub-Grantees that are not "public entities".

B. Sub-Grantees

Grantee shall require each Grant with Sub-grantees, other than those that are public entities, providing Goods or Services in connection with this Grant, to include insurance requirements substantially similar to the following:

i. Worker's Compensation

Worker's Compensation Insurance as required by State statute, and Employer's Liability Insurance covering all of Grantee and Sub-grantee employees acting within the course and scope of their employment.

ii. General Liability

Commercial General Liability Insurance written on ISO occurrence form CG 00 01 10/93 or equivalent, covering premises operations, fire damage, independent Grantees, products and completed operations, blanket Grantual liability, personal injury, and advertising liability with minimum limits as follows: (a) \$1,000,000 each occurrence; (b) \$1,000,000 general aggregate; (c) \$1,000,000 products and completed operations aggregate; and (d) \$50,000 any one fire. If any aggregate limit is reduced below \$1,000,000 because of claims made or paid, Sub-grantee shall immediately obtain additional insurance to restore the full aggregate limit and furnish to Grantee a certificate or other document satisfactory to Grantee showing compliance with this provision.

iii. Automobile Liability

Automobile Liability Insurance covering any auto (including owned, hired and non-owned autos) with a minimum limit of \$1,000,000 each accident combined single limit.

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iv. Additional Insured

Grantee and the State shall be named as additional insured on the Commercial General Liability and Automobile Liability Insurance policies (leases and construction Grants require additional insured coverage for completed operations on endorsements CG 2010 11/85, CG 2037, or equivalent).

v. Primacy of Coverage

Coverage required of Grantee and Sub-grantees shall be primary over any insurance or self-insurance program carried by Grantee or the State.

vi. Cancellation

The above insurance policies shall include provisions preventing cancellation or non-renewal without at least 45 days prior notice to the Grantee and the State by certified mail.

vii. Subrogation Waiver

All insurance policies in any way related to this Grant and secured and maintained by Grantee or its Sub-grantees as required herein shall include clauses stating that each carrier shall waive all rights of recovery, under subrogation or otherwise, against Grantee or the State, its agencies, institutions, organizations, officers, agents, employees, and volunteers.

C. Certificates

Grantee and all Sub-grantees shall provide certificates showing insurance coverage required hereunder to the State within seven business days of the Effective Date of this Grant. No later than 15 days prior to the expiration date of any such coverage, Grantee and each Sub-grantee shall deliver to the State or Grantee certificates of insurance evidencing renewals thereof. In addition, upon request by the State at any other time during the term of this Grant or any sub-grant, Grantee and each Sub-grantee shall, within 10 days of such request, supply to the State evidence satisfactory to the State of compliance with the provisions of this §13.

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Attachment 3

Water Supply Reserve Account Standard Contract

NOTE: The following contract is required for WSRA projects that exceed \$100,000. (Projects under this amount will normally be funded through a purchase order process.) Applicants are encouraged to review the standard contract to understand the terms and conditions required by the State in the event a WSRA grant is awarded. Significant changes to the standard contract require approval of the State Controller's Office and often prolong the contracting process.

It should also be noted that grant funds to be used for the purchase of real property (e.g. water rights, land, conservation easements, etc.) will require additional review and approval. In such cases applicants should expect the grant contracting process to take approximately 3 to 6 months from the date of CWCB approval.

Attachment 4
W-9 Form

NOTE: A completed W-9 form is required for all WSRA projects prior execution of a contract or purchase order. Please submit this form with the completed application.